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ABSTRACT

This document contains most of the evaluation instruments and instructions for evaluation used in the 1973-76 field test of Levels I, II, and III of the Biological Sciences Curriculum Study (BSCS) Human Sciences Program, a 3-year, interdisciplinary science program for 11- to 14-year olds. Since the materials were retrieved from teachers guides, unpublished evaluation papers, and miscellaneous papers used in field test classes, notations, footnotes, and other inclusions in text pieces will not follow one from the other. Original pagination has been removed and papers serially numbered. This publication is intended to serve, along with others listed in an appendix, as a set of documents concerning the formative evaluation of the Human Sciences Program. (Author/JN)

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ED218149

Human Sciences Evaluation Materials

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Preface

The Human Sciences program necessitated the development of a large number of evaluation procedures and instruments. This was due to the innovative nature of the curriculum project and to facilitate the goal of providing opportunities for students to develop skills in self-evaluation.

This microfische publication was developed with two reader groups in mind. First, the Human Sciences Evaluation Report would have required a large appendix to accommodate these materials. Yet, the report can be fully understood only with reference to the evaluation procedures and instruments.

Secondly, the data tape _Human Sciences Evaluation Data, HSPALL_: and the _Human Sciences Evaluation Data_, _User's Guide for the Machine-Readable Data File_, have limitations without the complete instruments used to gather the data. The limitations of SPSS labels and the expense of including graphics in the _User's_ Guide made it mandatory that this publication be made available at minimal expense. It is offered as an essential document along with the above publications and those listed in the Appendices as a set of documents concerning the formative evaluation of the the Human Sciences Curriculum program.

This publication contains most of the evaluation instruments and instructions for evaluation used in the field test of the Human Sciences Program, Levels I, II, and III, during the academic years 1973-4, 1974-5, and 1975-6. As these materials were retrieved from Teachers Guides, unpublished evaluation papers, and miscellaneous papers used in field test classes, notations, footnotes, and other inclusions in text pieces will not follow one from the other. Original pagination has been removed and papers serially numbered for this publication.

The column in this publication titled "Tape Code" gives the SPSS variable names that are found in the Codebook for Human Sciences Data File, HSPALL, and in the data file, SPSS Archive File HSPALL, itself. Not all data collected are included in HSPALL.

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Level I, 1973-74

Description of The Evaluation Materials

Five Human Sciences modules, BEHAVIOR, SURVIVAL, SENSE...OR NONSENSE?, LEARNING, and GROWING were field tested in sixth grade classes during the academic year 1973-74.

The only information recorded in the HSPALL data tape were the activity choices of students. If students marked "yes", in the Activity Evaluation Form or You Are The Judge form, the response was considered as "activity done." A careful examination of the ratings on the two forms indicated that the information was not worth coding and filing as ratings were quite flat across activities.

Scoring protocols for How Is Your Logic? 1974 Edition are not included in this manual as they are copyrighted by William M. Gray, Department of Educational Psychology, University of Toledo, Toledo, Ohio, and may be obtained from him.

EVALUATING STUDENT DEVELOPMENT

Evaluating student development is a joint endeavor of student and teacher. The experimental evaluation program places as much record keeping in the hands of students as possible. The teacher role is to assist students in understanding why evaluation and record keeping are of importance to them and to supervise and facilitate record keeping. Careful attention to record keeping and cooperative evaluation is an integral part of learning in HUMAN SCIENCES.

You can help students' understand why these records are important to them by understanding and valuing their written and oral reports and explanations.

In the publication, HUMAN SCIENCES: A Developmental Approach to Adolescent Education, we have argued against comparative achievement grading. Whether or not you are required to grade comparatively, the records you and the students will develop will serve evaluative purposes. We hope that you can use these data sources to make judgments that will enhance each student's self-esteem and sense of accomplishment.

Several data sources will be useful in making judgments about each student's development. The table below provides a list of the data sources, the frequency of collection, and who will be gathering and maintaining them.

DATA SOURCE	FREQUENCY OF RECORD	TO BE PREPARED BY:
Student Journal	daily	each student
Activity Evaluation Sheet	at completion of each activity	each student
Written data forms, graphs, stories	for some activities as specified	each student or student group
Constructed objects	for some activities as suggested	each student or student group
Events, presentations, reports	for some activities as suggested	each student or student group
Teacher Observation Record	two reports daily	teacher

We are aware that the list may look formidable. However, these items replace, by an entirely new system, the existing program of quizzes, tests, lab reports and drawings, and the record keeping and report forms associated with it. After you understand the new system we are confident that it will be no more time-consuming. With your help we anticipate that it will be more valuable to you, to students, and to parents.

STUDENT EVALUATION RECORDS

Student Journals

The Student Journal should be initiated as an all-class activity the first day--the day you begin the BEHAVIOR module. Reserve about 15 minutes at the end of the class period for this. Don't have students put away activity materials until they complete their journal entries.

Distribute a copy of the Student Journal to each student. Although instructions for keeping the journal are in the booklet, your oral presentation will probably be more effective. The instructions can be used for reference.

Have students turn to the calendar page with the day's date. Explain each column and check around the room as students make their records for the day.

Journals will be issued and collected every six weeks.

Activity Evaluation Forms

The forms are provided in the module activity box labeled Activity Evaluation Forms. This part of the evaluation program should not be introduced until the first student has completed an activity. It can then be introduced to individuals, groups, or to the full class. You might wish to have students turn in Activity Evaluation Forms to you as they complete them. This will inform you of completion and enable you to review student comments.

Activity evaluation forms can either be returned to students for them to keep until you review their work periodically with them or you can retain them. When you have used them fully, be sure that they are mailed to the Human Sciences Program, BSCS, P. O. Box 930, Boulder, Colorado, 80302.

Written Materials

Some activities involve gathering data on printed forms; others request written explanations, stories, and the like. Students should be informed that all such written materials should be kept in their folders. We urge that you review these materials with students in terms of improvement in quality over several modules.

Construction

Some activities ask students to construct clay figures, collages, and similar materials. Again, we urge that those materials be viewed with each student's development as the referent.

TEACHER EVALUATION RECORDS

We will be developing instruments for your use throughout the test year. Specimen copies of the forms developed thus far follow this section of the Teachers Guide. The guiding principles of evaluation are that it should be a continuous process and that the criterion reference should be each individual student compared to himself rather than with his classmates. Variability and changeability in the student population and fluctuations in growth rates preclude, in our judgment, comparative evaluations (see HUMAN SCIENCES: A Developmental Approach to Adolescent Education).

The Teacher Observation Record is the only form you will be using during the BEHAVIOR module.

Each week select 10 students for observation, two for each day. If a student is absent, select the next student on the list. Pick up absentees, if at all possible, during the same week. At the end of the week review the observation record of each student, adding comments as appropriate. If you have additional ratings, circle new numbers, placing an "X" above the circle to identify it from the regular observation.

Retain the original form for your own use. Mail the carbon copy of 10 rating forms to the BSCS in the self-addressed, stamped envelopes at the end of each week.

By observing 10 students each week, you will be able to collect data for a class of 30 in 15 school days.

At periodic intervals, depending on your own needs and school requirements, you will be able to utilize all of the data to make judgments about student development. We will appreciate your comments on the usefulness of these various kinds of data, and especially gaps that we need to fill. We would also like to have your assessment of the time required for this kind of evaluation compared to the time required in evaluation in other classes you are teaching.

One final form is provided for your convenience. That is a Classroom Record Sheet. You can use it to keep track of the activities each student is doing; when he or she started and finished.

SUMMARY

During each module, then, we anticipate receiving copies of Teacher Observation Records. When you complete this module, please mail us your copy of this Teachers Guide with comments you have noted that will help us in improving it and the Student Activities. We will provide you with another copy of the guide.

We also need to receive the Student Journals from your class. Students will maintain them for a period of six weeks. After you have used them for your own evaluation needs, box the journals and send them to the HUMAN SCIENCES program at BSCS.

* * *

Samples of the teacher and student evaluation materials follow.

BEHAVIOR

TEACHER OBSERVATION RECORD

HUMAN SCIENCES

TEACHER________________________ DATE__________ STUDENT NAME____________________

CIRCLE THE APPROPRIATE NUMBER

AT BEGINNING OF CLASS — COMMENTS

0 NO/NA (not observable or applicable)
1 never got started
2
3 required much prodding
4 teacher-initiated start
5
6 started on his/her own

AFTER COMPLETING AN ACTIVITY — COMMENTS

0 NO/NA
1 didn't get started on new activity
2
3 was asked several times to start new activity
4 was asked to select new activity
5
6 initiated own activity selection

PERSISTENCE — COMMENTS

0 NO/NA
1 didn't get to work
2
3 worked to a point, then stopped
4 worked on and off
5
6 worked steadily on tasks

DURING CLASS — COMMENTS

0 NO/NA
1 needed constant supervision
2
3 needed frequent help
4 needed occasional help
5
6 worked independently

GROUP COOPERATION — COMMENTS

0 NO/NA
1 noncooperative with group
2
3 seldom cooperative with group
4 sometimes cooperative with group
5
6 fully cooperative with group

GROUP PARTICIPATION — COMMENTS

0 NO/NA
1 disrupted group organization
2
3 followed group organization
4 aided group organization
5
6 organized group

INTEREST — COMMENTS

0 NO/NA
1 apathetic
2
3 passive
4 interested
5
6 enthusiastic

AS A DISCUSSANT — COMMENTS

0 NO/NA
1 non-participant in discussion
2
3 frequently participated in discussion
4 actively participated in discussion
5
6 dominated discussion

CLASSROOM RECORD SHEET

BEHAVIOR

School ______________________ Teacher ______________________ Grade ________

WHAT'S THE DIFFERENCE?

DATA

Date Begun
Date Ended

STUDENT NAMES	GROTTY	WHAT'S GOING ON HERE?	HELP, I'M COMING UNPLUGGED!	SHUT YOUR EARS & OPEN YOUR EYES	WHERE DID YOU GET THAT IDEA?	MIND YOUR POSTURE	ANIMAL CRACKLES	WHERE DO THEY LIVE?							

STUDENT DIRECTIONS

In the HUMAN SCIENCES program you get to learn in ways that are important to you. In HUMAN SCIENCES you make the choices. There are many of them to make. For example, you can choose what activities you want to do. You can choose what activity to do first. You can choose the classmates you will work with on each activity. By making your own choices, you will be learning in the way you want to learn.

Since you are finding new ways to learn, you need new ways to show others how you have learned. To do this you will need records. The records you keep in this program will not be tests. Instead, you will keep a HUMAN SCIENCES Journal. This journal will be a record which will help you remember what you have done. It will also be a record you can show your parents and teachers.

KEEPING YOUR HUMAN SCIENCES JOURNAL

Each day you will get some time to write in your HUMAN SCIENCES Journal. The journal is like a calendar and provides space for the three things you need to keep track of.

First, write the title of the activity you worked on. If you worked on more than one activity, list all the titles. You do not need to record the titles of those activities in which other students interviewed you.

Second, if you worked alone, check the space provided. If you worked with others, list their names in the space provided.

Third, describe the feelings you had when doing each activity. For example, maybe you were interested or felt excited. You might have been so tired you couldn't work well. Perhaps you completed something and felt very pleased with yourself. Maybe you couldn't understand the directions to the activity and couldn't get anyone to help. It may be that you would have liked to work with someone, but couldn't find anyone to work with. Perhaps the classmates you worked with were fun. Please record all the things you felt during each activity.

When you read your journal, you will learn a lot about yourself and your feelings. When your teacher and parents read your journal, they will see how you have learned. When the HUMAN SCIENCES staff read your journal, they will be able to learn about you and see how to improve the program.

ACTIVITY EVALUATION FORMS

Another record you will be working with is the Activity Evaluation Form. After finishing an activity, you need to fill out the evaluation form. Use one form for each completed activity. Be sure to fill out an Activity Evaluation Form as soon as you finish an activity. You can find these forms in the activity box titled Activity Evaluation Forms. Please give all of your completed forms to your teacher.

HUMAN SCIENCES JOURNAL

NAME ____________________ TEACHER ____________________

SCHOOL ____________________

MONDAY, SEPTEMBER 10 My activity title(s) ____________

I worked: alone ___ with ____________________

As I worked today I felt ____________________

TUESDAY, SEPTEMBER 11 My activity title(s) ____________

I worked: alone ___ with ____________________

As I worked today I felt ____________________

WEDNESDAY, SEPTEMBER 12 My activity title(s) ____________

I worked: alone ___ with ____________________

As I worked today I felt ____________________

HUMAN SCIENCES

NAME ______________________ SCHOOL ____________________

ACTIVITY EVALUATION FORM

ACTIVITY TITLE ______________________________

Circle the NUMBER over the words that best tell how you felt about the activity. If you want to, please give the reason for your choice.

1	2	3	4
no fun at all	not much fun	fun	a lot of fun

Reason: ____

1	2	3	4
didn't learn	learned a little	learned some	learned a lot

Reason: ____

1	2	3	4
too hard to do	hard to do	easy to do	too easy to do

Reason: ____

1	2	3	4
unimportant	not very important	important	very important

Reason: ____

1	2	3	4
uninteresting	not very interesting	interesting	very interesting

Reason: ____

GO ON TO NEXT PAGE

1	2	3	4
directions were very confusing	directions were confusing	directions were clear	directions were very clear

Reason: ____

1	2	3	4
there was too much to do	there was a little too much to do	there was just enough to do	there was not enough to do

Reason: ____

This is an experimental activity. The writers need to know all they can about your reaction to it. Write anything else you can tell them that would make it better for other students. For example, you might tell what you liked best and what you didn't like in the activity.

1. I completed the activity ☐

   I didn't complete the activity ☐

2. All written records (data sheets, stories, etc.) I did in this activity are:

   In my folder ☐

   In the activity box ☐

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HUMAN SCIENCES JOURNAL

NAME ____________________ TEACHER ____________________

SCHOOL ____________________

MONDAY, OCTOBER 22 My activity title(s) __________

I worked: alone ___ with ____________________

As I worked today I felt ____________________

TUESDAY, OCTOBER 23 My activity title(s) __________

I worked: alone ___ with ____________________

As I worked today I felt ____________________

WEDNESDAY, OCTOBER 24 My activity title(s) __________

I worked: alone ___ with ____________________

As I worked today I felt ____________________

NAME ____________________ SCHOOL ____________________

ACTIVITY EVALUATION FORM

ACTIVITY TITLE ____________________________

Circle the NUMBER over the words that best tell how you felt about the activity. If you want to, please give the reason for your choice.

1	2	3	4
no fun at all	not much fun	fun	a lot of fun

Reason: ____

1	2	3	4
didn't learn	learned a little	learned some	learned a lot

Reason: ____

1	2	3	4
too hard to do	hard to do	easy to do	too easy to do

Reason: ____

1	2	3	4
unimportant	not very important	important	very important

Reason: ____

1	2	3	4
uninteresting	not very interesting	interesting	very interesting

Reason: ____

GO ON TO NEXT PAGE

1	2	3	4
directions were very confusing	directions were confusing	directions were clear	directions were very clear

Reason: ____________________

1	2	3	4
there was too much to do	there was a little too much to do	there was just enough to do	there was not enough to do

Reason: ____________________

This is an experimental activity. The writers need to know all they can about your reaction to it. Write anything else you can tell them that would make it better for other students. For example, you might tell what you liked best and what you didn't like in the activity.

1. I completed the activity ☐
   I didn't complete the activity ☐
2. All written records (data sheets, stories, etc.) I did in this activity are:
   In my folder ☐
   In the activity box ☐

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SURVIVAL

TEACHER OBSERVATION RECORD

HUMAN SCIENCES

TEACHER ______________________ DATE ____________ STUDENT NAME ______________________

CIRCLE THE APPROPRIATE NUMBER

AT BEGINNING OF CLASS — COMMENTS

- 0 NO/NA (not observable or applicable)
- 1 never got started
- 2
- 3 required much prodding
- 4 teacher-initiated start
- 5
- 6 started on his/her own

AFTER COMPLETING AN ACTIVITY — COMMENTS

- 0 NO/NA
- 1 didn't get started on new activity
- 2
- 3 was asked several times to start new activity
- 4 was asked to select new activity
- 5
- 6 initiated own activity selection

PERSISTENCE — COMMENTS

- 0 NO/NA
- 1 didn't get to work
- 2
- 3 worked to a point, then stopped
- 4 worked on and off
- 5
- 6 worked steadily on tasks

DURING CLASS — COMMENTS

- 0 NO/NA
- 1 needed constant supervision
- 2
- 3 needed frequent help
- 4 needed occasional help
- 5
- 6 worked independently

GROUP COOPERATION — COMMENTS

- 0 NO/NA
- 1 noncooperative with group
- 2
- 3 seldom cooperative with group
- 4 sometimes cooperative with group
- 5
- 6 fully cooperative with group

GROUP PARTICIPATION — COMMENTS

- 0 NO/NA
- 1 disrupted group organization
- 2
- 3 followed group organization
- 4 aided group organization
- 5
- 6 organized group

INTEREST — COMMENTS

- 0 NO/NA
- 1 apathetic
- 2
- 3 passive
- 4 interested
- 5
- 6 enthusiastic

AS A DISCUSSANT — COMMENTS

- 0 NO/NA
- 1 non-participant in discussion
- 2
- 3 frequently participated in discussion
- 4 actively participated in discussion
- 5
- 6 dominated discussion

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SURVIVAL QUESTIONNAIRE

TEACHER ______________________________ SCHOOL __________________________________

At your earliest convenience, please tally data as shown in the chart below. You will probably need to have students review each activity, or review them yourself, to properly identify the activity in each student's thinking. Ask for a show of hands after you are confident that students have identified the activity with each title. Having each student refer to his Survival folder may help.

SURVIVAL ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
The Mysterious Yuk			
Mice Meals			
What Do Mice Eat?			
Food Chain			
Let's Make A Mobile			
Is Taste the Test?			
Food for Thought			
What's In It For You?			
If You Want It, Can You Get It?			
Did I Eat All That?			
The American Way of Eating			
Job Cards--Food			
The Mouse Takes a House			
The Gerbil's House			
The Incredible Ant			
What's for Sale?			
My Family Space			
The Mini-Community			
Adventures at Home			
Animal Shelters			
Job Cards--Shelter			

CONTINUED ON OTHER SIDE

SURVIVAL ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
It's Off To Work I Go!			
Keep on Truckin'			
Future Job			
What's It Worth?			
Judging Jobs			
Job Ladder			
Job Cards--Work			
Survival Library			

HSP:12/12/73
JTR:mrs
DRAFT ONE

YOU ARE THE JUDGE

Another record you will be working with is called You Are The Judge. After finishing an activity, you need to fill out this form. Use one form for each completed activity. Be sure to fill out a You Are The Judge form as soon as you finish an activity. You can find them in the activity box titled You Are The Judge Forms. Please give all of your completed forms to your teacher.

SENSE OR NONSENSE? ACTIVITY ____________

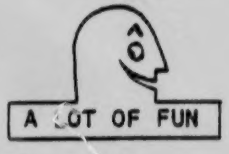
NAME(s)____________ SCHOOL____________ DATE____________

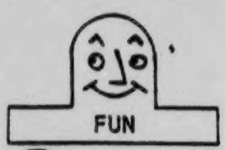
OVER 4 MILLION KIDS ARE WAITING:

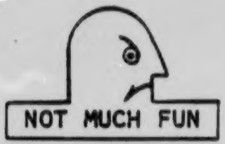
You are the Judge

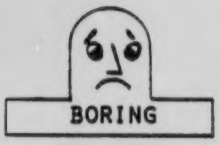
PUT AN "X" ON THE DRAWING THAT BEST TELLS HOW YOU LIKED THE ACTIVITY

1

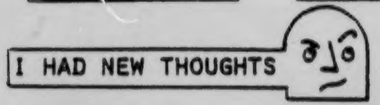

A LOT OF FUN

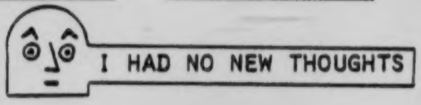

FUN


NOT MUCH FUN


BORING

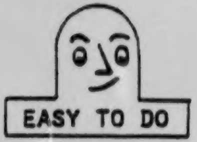
2

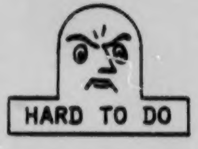

I HAD NEW THOUGHTS

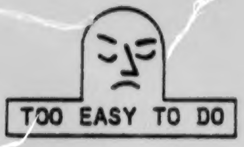

I HAD NO NEW THOUGHTS

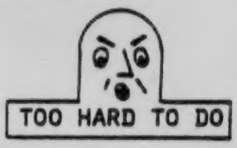
WHAT? ____________

3


EASY TO DO


HARD TO DO


TOO EASY TO DO


TOO HARD TO DO

WHY? ____________

I FINISHED THE ACTIVITY: ☐ YES ☐ NO

4 WHAT WILL YOU REMEMBER FROM DOING THIS ACTIVITY?

5 WHAT DID YOU LIKE **BEST** ABOUT THE ACTIVITY?

6 HOW WOULD YOU MAKE THIS ACTIVITY **BETTER**?

7 DO YOU THINK OTHER SIXTH GRADERS WOULD LIKE TO DO THIS ACTIVITY? WHY OR WHY NOT?

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SENSE...OR NONSENSE QUESTIONNAIRE

TEACHER ____________________ SCHOOL __________________________ DATE ____________

A few months ago, we sent you a questionnaire on SURVIVAL which was similar to the one shown below. Although we have not received responses from all of you, the data we have accumulated indicate some interesting patterns. If you have not returned the SURVIVAL questionnaire, please do so as quickly as possible. Enclosed is an additional copy of the form in the event that you have misplaced the original.

The directions for completing the following questionnaire on SENSE...OR NONSENSE are exactly the same as those used for the SURVIVAL questionnaire. We would appreciate your returning this information as soon as your students have completed the SENSE...OR NONSENSE module.

Thanks for your cooperation.

SENSE...OR NONSENSE ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
Extending Our Senses			
Attention!			
Sight and Sound			
What If You Couldn't See?			
The Silent World?			
What Is It Like?			
Seeing Myself			
The Wall of Light			
Animal Worlds			
What Do You See?			
Do You See What You Feel?			
What Are They Doing?			
The Perception Chain			
You Are A Witness			
Do You See What I See?			
The Time Capsule			

SENSE...OR NONSENSE ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
The Seeing Room			
Near and Far			
Hot or Cold?			
What's Fair?			
Who's Most Important?			
How Far Is It?			
Behind the Scenes			

DS:11b
HSP:3/20/84

36

EVALUATION

The LEARNING module provides an opportunity to redefine the functions of students and teachers in performing their mutual responsibilities for evaluation. The philosophy of evaluation can now be somewhat clarified. For early adolescents with their attendant variability, comparative grading on fixed criteria does not seem justifiable. Also, using grades as weapons for control or as punishment is incompatible with the long-range goal that students develop internalized purposes for learning.

Students come into Human Sciences already well-indoctrinated in external evaluation. Your task has been to help develop procedures and student competencies that will enable you and your students to contribute to judgments about student growth.

You have major responsibilities in evaluation. First, a climate needs to be developed that includes evaluations as a joint, ongoing endeavor. Students may not wish, nor may they be likely to have the competencies, to participate in self-evaluation. These are to be developed with your assistance.

Next, you will need to think about criteria for evaluation, management of evaluation procedures, and recordkeeping. Each of these aspects of evaluation is necessary. In most school systems one does not have a choice of whether or not to evaluate. An essential part of the Human Sciences philosophy is that evaluation activities are integral to student growth and development. After three modules, students seem to be becoming aware that evaluation cannot be solely personal or teacher-given. They are learning that they must account to themselves--"What did I learn?"--to their parents, and to other publics.

Traditionally, student evaluation has included three factors: ability (judged from tests or subjectively by the teacher), effort (judged by a fixed standard--"Sixth graders should...;" by comparison with others; or in comparison to past work or assumed ability--"You can do better than that"), and achievement (judged by percentages, letter grades, etc.). You will find that the activity "Rewards for Learning" in Learning about Signs and Symbols utilizes these criteria and may contribute toward student growth in becoming more precise about criteria for evaluation.

The goals of Human Sciences require development and legitimization of both additional and alternative criteria.

POSSIBLE CRITERIA FOR EVALUATION

Each criterion needs to be approached from mutual acceptance by you and your students. If your class does not value a particular criterion, it should not be utilized. If your class does not have a common understanding of the meaning of each accepted criterion before it is used, the criterion is worthless. Four general criteria are discussed below:

1. **Purposefulness.** (Why am I doing this?)
   The student can explain what he/she is doing in the activity and why. This doesn't mean that his/her purpose coincides with your expectations. Rather, it means that the student is doing the

activity purposefully, not blindly. Initially, apparent purpose may be satisfactory for some students, but expect progressions with time.

2. Productivity. (How well am I doing?) How does the student feel about his/her accomplishments? Can she/he explain an accomplishment? Perhaps a product will be enough initially, but again, the formalization and generalization of experience in language is to be sought. Both the quantity and quality of productivity need to be of concern. For the long term, your role is to help students establish and critique their own criteria for what they accomplish.

3. Cooperativeness. (Is my work helpful to others?) What is the quality of the student's contribution to groups she/he has worked with and to the class as a whole? Does he/she sometimes work on an activity to help another student who needed a partner, even when he/she didn't really want to work with that activity?

4. Responsibility. (Am I getting better at working on my own?) Is each student developing competencies that enable him/her to assume more responsibility for learning? Are students able to spend longer periods at attempting to solve problems? Do they help others when they see problems to solve? Are more problems that needed teacher help early in the year now being solved by students?

STUDENT INVOLVEMENT

You may have solved this problem, but some teachers haven't. When a grading period arrives, they find they have very little evidence to support their judgments. One criterion for success in grading is how students react to and feel about their grade. If they feel their grade or other evaluation is unfair, then you still have work to do.

A key part of the proposed student involvement procedures was the use of student journals. Stopping at the end of each class period to quietly reflect about what the class meant was suggested as a means to contribute to review, reflection, and, for a few students, analysis of experience. The journal has not been very successful. You might want to develop your own alternatives (as some of you have). You might work with students to develop criteria to grade themselves. For students who dislike writing, you might use check lists or words to circle. If daily attention to evaluation is too much, perhaps two or three times a week would be useful, especially if the days are varied. To keep evaluation within the module experience instead of "tacked-on" to the end, at least weekly attention to evaluation seems necessary.

Student self-evaluation can be as simple as below:

> The (worksheet, story, etc.) I did (my group did) is an example of:
>
> 1. The best I can do
> 2. Good work for me
> 3. Average work for me
> 4. What I do when I don't try

Check as many as apply:

The activity I did:

_____1. Did not make me think much about it
_____2. Made me think some
_____3. Made me think a lot
_____4. Made me curious about other activities like it

If I were to do this (activity, worksheet, etc.) again, I would:

_____1. Do about the same things
_____2. Try to figure out a different way to do it
_____3. Try to understand better what happened
_____4. Try to learn more about some of the things I did

The most important ingredient of self-evaluation is that it be honest and capable of explanation. This means that you will need to interact with students to show you care about what they say and to help them develop internal standards of quality appropriate to their own development.

MANAGING EVALUATION PROCEDURES

Some procedures, such as the "You Are the Judge" forms, are the responsibility of students. But you are an essential part of facilitating qualitative improvements in how students respond. We think this form and its predecessor provide data for evaluative judgments. We think the form is not just useful to us at BSCS this year, but is a step toward legitimization of student reflection on and evaluation of classroom activities. We suggest that an important aspect of "learning to learn" is learning how to reflect on experience and make judgments about experience. As you scan the "You Are the Judge" sheets, can you view them in terms of the quality of comment? Can you help students improve the quality of their judgments? In so doing, can you avoid judging the content of the response; i.e., are comments such as "I felt talking to a rock was dumb," and "I really thought it was real fun and very exciting to talk to a rock" accepted, but probed for further reasoning?

You are trying to help students formalize their experience. For example, in "Mind Your Posture," one student wrote that he liked "putting the wolf together." Another wrote that the activity was important because it showed "how he looks when he is angry." Both are valid, useful responses. If a student starts the year describing his activity and later moves to interpretation of the activity, growth is occurring. Through careful questioning you can facilitate this process. It is important that your management plan include written records and that these records be reviewed over time. Where a student can look with you at early and later records she/he has made and see that he/she has changed, you are helping the student develop personal awareness of growth.

As you plan for the next day and the next week, plan time for student reflection about what they are doing. Examine student materials so that you will have prepared the range of questions you will need to ask as you work with students. It takes a great deal of experience before one can generate the right kinds of questions on the spot!

We have provided a single chart of all the activities in LEARNING. We hope you will find this a useful tool for keeping track of students as they work through the module. We would like very much to get this completed chart from you when the module is completed.

LEARNING ACTIVITY ____________________

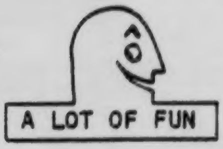
NAME(s) ____________________ SCHOOL ____________________ DATE ____________

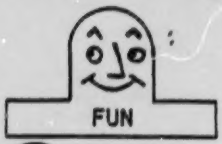
OVER 4 MILLION KIDS ARE WAITING:

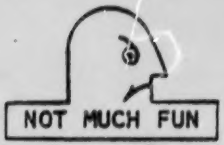
You are the Judge

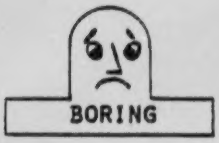
PUT AN "X" ON THE DRAWING THAT BEST TELLS HOW YOU LIKED THE ACTIVITY

1






NOT MUCH FUN



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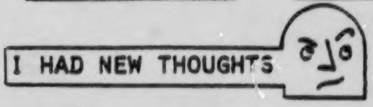
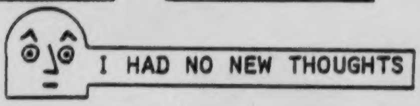
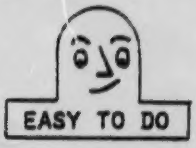
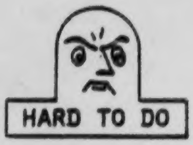

I HAD NEW THOUGHTS

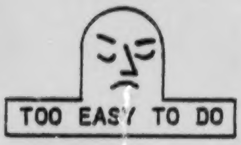

I HAD NO NEW THOUGHTS

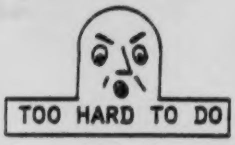
WHAT? ____

3






TOO EASY TO DO


TOO HARD TO DO

WHY? ____

I FINISHED THE ACTIVITY: ☐ YES ☐ NO

4 WHAT WILL YOU REMEMBER FROM DOING THIS ACTIVITY?

5 WHAT DID YOU LIKE **BEST** ABOUT THE ACTIVITY?

6 HOW WOULD YOU MAKE THIS ACTIVITY **BETTER**?

7 DO YOU THINK OTHER SIXTH GRADERS WOULD LIKE TO DO THIS ACTIVITY? WHY OR WHY NOT?

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LEARNING QUESTIONNAIRE

TEACHER ____________________ SCHOOL ______________________ DATE ____________

Please review the following LEARNING activities with your students and complete the following survey at your earliest convenience. Your prompt responses to recent requests for information enable a smoother interpretation of the data. Many thanks!

LEARNING ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
Oops! I'm off Balance			
Maze Mission			
How Do You Do It?			
Making a Flying Wing Glider			
Airplane Controls and How They Work			
How Does a Balloon Rocket Work?			
What Is the Best Way?			
Making Things			
Mirror Road			
Music Is Feeling			
What Do You Think of That?			
Monkey See, Monkey Do			
What's So Funny?			
Five Square			
Where Do You Stop?			

LEARNING QUESTIONNAIRE

LEARNING ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
How Do Colors Affect You?			
Cemeteries and Obituaries			
Making a Family Tree			
Digging Up the Past			
Pocketful of Problems			
Secret Codes			
Sounds and Words			
Pictures and Sounds			
Mr. Toad			
Can a Fish Learn?			
Rewards for Learning			
Elmer the Unbeatable			

DKP:11b
HSP:5/21/74

GROWING ACTIVITY ____________________

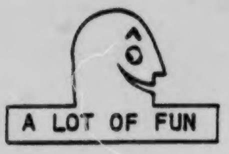
NAME(s) ____________________ SCHOOL ____________________ DATE ____________

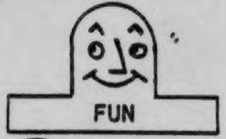
OVER 4 MILLION KIDS ARE WAITING:

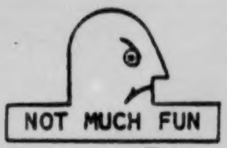
You are the Judge

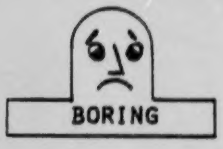
PUT AN "X" ON THE DRAWING THAT BEST TELLS HOW YOU LIKED THE ACTIVITY

1

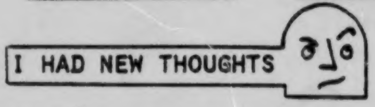

A LOT OF FUN

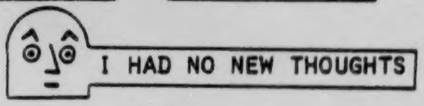

FUN


NOT MUCH FUN


BORING

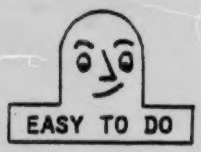
2

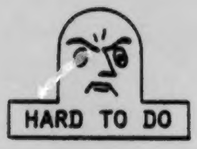

I HAD NEW THOUGHTS

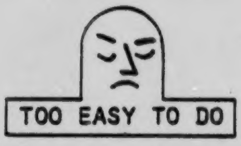

I HAD NO NEW THOUGHTS

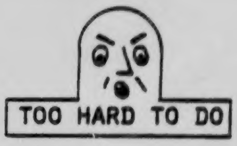
WHAT? ____

3


EASY TO DO


HARD TO DO


TOO EASY TO DO


TOO HARD TO DO

WHY? ____

I FINISHED THE ACTIVITY: ☐ YES ☐ NO

4 WHAT WILL YOU REMEMBER FROM DOING THIS ACTIVITY?

5 WHAT DID YOU LIKE **BEST** ABOUT THE ACTIVITY?

6 HOW WOULD YOU MAKE THIS ACTIVITY **BETTER**?

7 DO YOU THINK OTHER SIXTH GRADERS WOULD LIKE TO DO THIS ACTIVITY? WHY OR WHY NOT?

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GROWING QUESTIONNAIRE

TEACHER________________________ SCHOOL___________________ DATE_______

The end of the school year is rapidly approaching, and you may find that class time available for exploring GROWING is limited. Nevertheless, we would like you to survey your students as before near the end of the GROWING module experiences. Please indicate the specific activities which were not chosen due to time limits or school policy regarding the teaching of growth and development. Thank you for your cooperation.

GROWING ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
Raising Baby Mammals			
Spiders			
Butterflies			
Growing Bugs			
The Honey Trip			
Raising Amphibians			
The Living Grocery			
Seeds and Gardens			
The Monkey's Tale			
Pets and Pests			
Becoming an Adult: Part 1			
Body Changes: Part 1			
Great Expectations: 1			
Super Amazing Growing Me: 1			

GROWING ACTIVITIES	NUMBER WHO		
	STARTED	COMPLETED	LIKED IT BEST
Having Babies			
Life before Birth			
Growing, Growing, Grown!			
Voices			
Developing Yourself			
What Age?			
Becoming an Adult: 2			
Body Changes: 2			
Great Expectations: 2			
Super Amazing Growing Me: 2			
Children's Ideas			
Children's Thinking			
Children's Values			
Secret Selves			
That's Mime			
Cycles			

PLAN FOR ADMINISTERING INSTRUMENTS TO YOUR CLASS

DAY 1	WHAT'S HAPPENING? (about 15 minutes)
	RETURN THIS INSTRUMENT ON OR BEFORE MAY 17
	You will receive the HOW'S YOUR LOGIC booklets the week of May 20.
DAY 2	HOW'S YOUR LOGIC (Booklet A, about 30-40 minutes)
DAY 3	HOW'S YOUR LOGIC (Booklet B, about 40-50 minutes)
	RETURN THESE BOOKLETS ON OR BEFORE MAY 24
	For a final mailing about May 23, you will receive the SENTENCE COMPLETION EXERCISE.
DAY 4	SENTENCE COMPLETION (Part I, about 40 minutes
DAY 5	SENTENCE COMPLETION (Part II, about 40 minutes
	RETURN THIS EXERCISE BY MAY 31

JS:lb
HSP:5/10/74

Human Sciences
Biological Sciences Curriculum Study
P.O. Box 930
Boulder, Colorado 80302

WHAT'S HAPPENING?

A. THE MEASURE

How a student feels about Human Sciences in his own school context is what this instrument will measure. Within this general framework, we are trying to gather data about how the student perceives his role in the Human Sciences classroom.

B. THE ADMINISTRATION TIME

In trial administrations 20 to 25 minutes were needed to introduce, administer, and collect the instrument. About 12 to 14 minutes were required for reading the items.

C. PLANS FOR ADMINISTERING, COLLECTING, SCORING, AND ANALYZING PROCEDURES:

The following instructions should be used in adminstering *What's Happening?*

1. Hand out the papers.
2. Ask students to write their names in the designated space - clearly, and to complete other information requested.
3. Read the directions as students follow along.
4. Ask for any questions. Respond to them as needed.
5. Have students turn the page. Remind them that you will read each statement twice.
6. After second reading of item 1, ask if there is any question about how they are to mark each statement.

7. Read the items at a pace that allows all students to think about and mark each item.
8. If students go ahead of you, let them.
9. After the last item, have students close the booklet with the name page out. Remind them to check to be sure they filled in all information blanks.
10. Collect papers, place in envelope, and seal envelope to show them you won't see their papers.

Put in the mail the same day! Don't give make-ups.

Thanks,

Jim

Jim Robinson

JTR:cl
HSP:5/19/74

WHAT'S HAPPENING? CONCEPTUAL DESIGN

CONCEPTUAL DIMENSION ITEM	S = Science HS = Human Sciences NS = Not Science	Directionality + -
Dimension 1: Attitude toward science and Human Sciences; importance of science, Human Sciences; intellectual		
[10] I feel good when we work on science.	S	+
[12] Human Sciences class often makes me think of new things.	HS	+
[14] I usually don't care whether science gets done or not.	S	-
[16] I like working out problems in science.	S	+
[19] I work harder on a science problem that is difficult.	S	+
[20] Human Sciences class is usually boring.	HS	-
[22] Nothing taught in Human Sciences is important to me.	HS	-
[25] When science is over I usually forget about it.	S	-
[31] Usually I understand what we are to learn in Human Sciences.	HS	+
[35] When school work gets confusing, I usually stop working.	NS	-
Dimension 2: Initiative, group membership, locus of control.		
[1] I am usually free to choose what I want to do in Human Sciences class.	HS	+
[3] The teacher tell us what to do in Human Sciences.	HS	-

CONCEPTUAL DIMENSION	ITEM	S = Science HS = Human Sciences NS = Not Science	Directionality + -
Dimension 2 cont.			
	[4]I seldom help other kids get organized for work in science class.	S	-
	[5]In Human Sciences class the other kids don't think I'm very helpful.	HS	-
	[8]I am usually a follower when working in a group.	NS	-
	[17]I hardly ever get into discussions about Human Sciences.	HS	-
	[28]Others depend on my help to get our school work done well.	NS	+
	[29]I show other kids interesting things to do in Human Sciences.	HS	+
	[30]Choosing what I want to do is very important to me.	NS	+
	[34]I get into a lot of discussions during science class.	S	+
	[37]Other kids often look to me for decisions.	NS	+
Dimension 3:	Comparison of science to other subjects, Human Sciences to regular science.		
	[2]I prefer regular science to Human Sciences.	HS	-
	[6]As a subject, I prefer science to other subjects.	S	+
	[9]During Human Sciences, we get to work more on our own or in small groups than we do in other classes.	HS	+
	[11]I get more out of Human Sciences that I can use than from other science classes.	HS	+
	[13]Human Sciences is about the same as other classes in my school.	HS	-

CONCEPTUAL DIMENSION	ITEM	S = Science HS = Human Sciences NS = Not Science	Directionality + -
Dimension 3 continued			
	15 In Human Sciences we are on our own too much compared to other subjects.	HS	-
	21 I feel that I get more done in other classes than in Human Sciences.	HS	-
	24 I spend more time thinking about Human Sciences than my other subjects.	HS	+
	27 Human Sciences doesn't do what I would like to do in science.	HS	-
	33 I waste more time in other subjects than I do in Human Sciences.	HS	+
	38 Human Sciences expects too much of sixth graders.	HS	-
Dimension 4	Fairness, evaluation, how what I do is valued and judged.		
	7 The way our work is graded in Human Sciences class seems unfair.	HS	-
	18 Students are trusted more in Human Sciences class than in other classes.	HS	+
	23 Compared to other classes, I feel like my schoolwork is better understood and accepted by the teacher in Human Sciences.	HS	+
	26 Students don't know how their work is being graded in Human Sciences.	HS	-
	32 In Human Sciences students are suspected of not doing their work.	HS	-
	36 In Human Sciences class I am allowed to grade myself.	HS	+

Human Sciences
Biological Sciences Curriculum Study
P.O. Box 930
Boulder, Colorado 80302

NAME________________________

BIRTHDATE________________________
month/day/year

CIRCLE ONE: BOY GIRL

TEACHER________________________

SCHOOL________________________

WHAT'S HAPPENING?

THIS IS NOT A TEST. THE SENTENCES IN THIS BOOKLET ARE ABOUT WHAT HAPPENS IN SCHOOL AND IN HUMAN SCIENCES. SOME SENTENCES ARE ABOUT WHAT THE TEACHER DOES; OTHERS ARE ABOUT WHAT YOU DO; AND OTHERS ASK FOR YOUR OPINION. THERE ARE NO "RIGHT ANSWERS." YOUR ANSWERS WILL HELP THE BSCS STAFF IN PREPARING BETTER HUMAN SCIENCES MATERIALS.

NO ONE AT YOUR SCHOOL WILL SEE HOW YOU MARKED THE STATEMENTS. PLEASE MARK THEM TO SHOW YOUR HONEST OPINION OF WHAT HAS HAPPENED THIS YEAR.

AS EACH SENTENCE IS READ TO YOU, DECIDE HOW WELL IT DESCRIBES YOU, YOUR CLASS, YOUR SCHOOL.

CIRCLE THE LETTERS	(SA)	IF YOU STRONGLY AGREE
CIRCLE	(A)	IF YOU AGREE A LITTLE
CIRCLE	(?)	IF YOU DON'T KNOW WHETHER YOU AGREE OR DISAGREE
CIRCLE	(D)	IF YOU DISAGREE A LITTLE
CIRCLE	(SD)	IF YOU STRONGLY DISAGREE

PLEASE WAIT FOR YOUR TEACHER TO ASK YOU TO TURN THE PAGE.

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	STRONGLY AGREE	AGREE A LITTLE	DON'T KNOW WHETHER I AGREE OR DISAGREE	DISAGREE	STRONGLY DISAGREE
1 I am usually free to choose what I want to do in Human Sciences class.	SA	A	?	D	SD
2 I prefer regular science to Human Sciences.	SA	A	?	D	SD
3 The teacher tells us what to do in Human Sciences.	SA	A	?	D	SD
4 I seldom help other kids get organized for work in science class.	SA	A	?	D	SD
5 In Human Science class the other kids don't think I'm very helpful.	SA	A	?	D	SD
6 As a subject I prefer science to other subjects.	SA	A	?	D	SD
7 The way our work is graded in Human Sciences class seems unfair.	SA	A	?	D	SD
8 I am usually a follower when working in a group.	SA	A	?	D	SD
9 During Human Sciences we get to work more on our own or in small groups than we do in other classes.	SA	A	?	D	SD
10 I feel good when we work on science.	SA	A	?	D	SD

	STRONGLY AGREE	AGREE A LITTLE	DON'T KNOW WHETHER I AGREE OR DISAGREE	DISAGREE	STRONGLY DISAGREE
11 I get more out of Human Sciences that I can use than from other science classes.	SA	A	?	D	SD
12 Human Sciences class often makes me think of new things.	SA	A	?	D	SD
13 Human Sciences is about the same as other classes in my school.	SA	A	?	D	SD
14 I usually don't care whether science gets done or not.	SA	A	?	D	SD
15 In Human Sciences we are on our own too much compared to other subjects.	SA	A	?	D	SD
16 I like working out problems in science.	SA	A	?	D	SD
17 I hardly ever get into discussions about Human Sciences.	SA	A	?	D	SD
18 Students are trusted more in Human Sciences class than in other classes.	SA	A	?	D	SD
19 I work harder on a science problem that is difficult.	SA	A	?	D	SD
20 Human Sciences class is usually boring.	SA	A	?	D	SD

		AGREE A LITTLE	DON'T KNOW WHETHER I AGREE OR DISAGREE	DISAGREE	STRONGLY DISAGREE
21 I feel that I get more done in other classes than in Human Sciences.	SA	A	?	D	SD
22 Nothing taught in Human Sciences is important to me.	SA	A	?	D	SD
23 Compared to other classes I feel like my schoolwork is better understood and accepted by the teacher in Human Sciences.	SA	A	?	D	SD
24 I spend more time thinking about Human Sciences than my other subjects.	SA	A	?	D	SD
25 When science is over I usually forget about it.	SA	A	?	D	SD
26 Students don't know how their work is being graded in Human Sciences.	SA	A	?	D	SD
27 Human Sciences doesn't do what I would like to do in science.	SA	A	?	D	SD
28 Others depend on my help to get our school work done well.	SA	A	?	D	SD
29 I show other kids interesting things to do in Human Sciences.	SA	A	?	D	SD
30 Choosing what I want to do is very important to me.	SA	A	?	D	SD

	STRONGLY AGREE	AGREE A LITTLE	DON'T KNOW WHETHER I AGREE OR DISAGREE	DISAGREE	STRONGLY DISAGREE
31 Usually I understand what we are to learn in Human Sciences.	SA	A	?	D	SD
32 In Human Sciences students are suspected of not doing their work.	SA	A	?	D	SD
33 I waste more time in other subjects than I do in Human Sciences.	SA	A	?	D	SD
34 I get into a lot of discussions during science class.	SA	A	?	D	SD
35 When school work gets confusing I usually stop working.	SA	A	?	D	SD
36 In Human Sciences class I am allowed to grade myself.	SA	A	?	D	SD
37 Other kids often look to me for decisions.	SA	A	?	D	SD
38 Human Sciences expects too much of sixth graders.	SA	A	?	D	SD

JS:lb
HSP:5/10/74

Human Sciences Program
Biological Sciences Curriculum Study
P.O. Box 930
Boulder, Colorado 80302

INSTRUCTIONS FOR ADMINISTERING "HOW IS YOUR LOGIC"

The question booklets you are going to administer to your classes will provide the HSP with baseline data for a three-year study of those students who continue in the program. Thus, in order for the Project to obtain valid data, it is essential that all teachers administer these tests in the same way. Please follow the instructions just as closely as possible. If the instructions are not clear to you, please telephone us before you administer the booklets.

****

TIME AND SEQUENCE

There are two "How Is Your Logic?" booklets in the set (A and B). It is anticipated that it will take approximately 40 minutes for your students to complete all of the items in one booklet. If you can allow more than 40 minutes to administer each booklet, it might be advisable to do so since some of your students may want, or need, to take longer to complete the questions. This is not a timed test. Thus, the more time you can provide for individual differences, the more likely we are to get valid results. Every student should be given an opportunity to answer each question. It is necessary that the problems in one booklet be answered in one session. Do not administer a single booklet on 2 separate days. Plan the time of administration to avoid any interruptions. If you can arrange to administer the booklets on 2 separate but sequential days, this is the ideal arrangement. Do not change the order of administering the booklets. Booklet A must be given on the first day.

ADMINISTRATION

1. Do not call these booklets tests. Refer to them as question booklets.
2. Arrange for students to have something to read or work on so that they do not disturb others who may still be working when they finish the booklet.
3. Read the statement on the cover page to the students. Ask them to print their full names very clearly in the space provided. Tell them to complete the information called for. Be sure that every student provides all of the information. The top line preceeding the letter is for Project use.
4. Talk slowly in a clear, firm voice. Avoid hesitation or change of tone when reading questions and responses. Since voice inflections, hesitation, etc. may alter a student's answer, this is a critical point. It would be helpful if you read through the entire booklet aloud prior to administering the material.

5. When everyone has completed the information on the cover page, have the students turn to the examples that follow. There are three examples in each booklet. Each question and answer is separated by a blank page. Read each example slowly enough for every student to think about the question as well as write the answer. Then have the students look at the answer. Do not explain the questions or attempt to discuss the answers.
6. When you reach the end of the examples, tell the students that beginning with the next problem, you will read the question and possible responses and that you will not explain or reword the questions for them. Subsequently, if any students ask for clarification of an item, reread the item and ask them to think about it and to answer the way that THEY think is correct.
7. Read the entire item including all written responses. Pause, then repeat the question. Pause and wait until all students have responded.
8. Do not go on to the next item until all or most of the students have completed the item. Some items will require more thinking time than others. Use your judgment as to the length of time necessary for all or most students to complete an item. If some students work ahead, do not stop them. It is probably best not to make a general statement to this effect. Just simply permit this to occur if it does happen.

9. At the end of the class, allow students to go back and complete any items which they did not mark the first time through.

REMEMBER: DO NOT EXPLAIN OR RE-WORD ANY OF THE QUESTIONS FOR ANY STUDENT

OTHER

Ideally, these booklets should be administered when all of your students are present. Since this may not be possible, arrange a make-up time to have absentees respond to the booklets, following the same procedures for administration. Please return all of the booklets within 3 days after administering them. Plan to return them by, or before May 30.

If you have any questions concerning the booklets or the administering of them, please feel free to call us.

DS:cl
HSP:5/8/74

______________________ A

HUMAN SCIENCES

PLEASE PRINT:

NAME: ______________________

SCHOOL: ______________________

DATE OF BIRTH: ______________
month/day/year

BOY: ________ GIRL: ________

DATE: ______________________

HOW IS YOUR LOGIC?

THIS BOOKLET IS PART OF THE HUMAN SCIENCES PROGRAM. YOUR ANSWERS ARE IMPORTANT ONLY TO THE WRITERS AND WILL NOT BE USED BY YOUR TEACHER FOR ANY PURPOSE.

SOME OF THE PROBLEMS IN THIS BOOKLET ARE SIMPLE, SOME ARE MORE DIFFICULT. SOME PRESENT FACTS AND YOU HAVE TO MAKE A CONCLUSION. SOME ASK YOU TO LOOK AT DRAWINGS AND CHECK AN ANSWER. SOME WILL SEEM LIKE ARITHMETIC PROBLEMS, BUT YOU DON'T NEED TO DO ANY ARITHMETIC TO ANSWER THEM. OTHERS ASK YOU TO ANSWER A PROBLEM AND GIVE A REASON. THERE ARE 15 PROBLEMS. PLEASE ANSWER ALL OF THEM. YOU WILL HAVE ALL PERIOD TO ANSWER. THERE WILL BE TIME TO GO BACK TO ANY ITEMS YOU WISH AFTER ALL QUESTIONS HAVE BEEN READ.

PLEASE COMPLETE THE INFORMATION SECTION ABOVE BEFORE BEGINNING THE BOOKLET.

EXPERIMENTAL EDITION, MAY 1974

EXAMPLE A

ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR ED TO LIKE SUSAN?

JOHN LIKES MARY, BILL LIKES ANN, AND ED LIKES SUSAN.

JOHN LIKES MARY, BILL DOES NOT LIKE ANN, AND ED LIKES SUSAN.

JOHN DOES NOT LIKE MARY, BILL LIKES ANN, AND ED DOES NOT LIKE SUSAN.

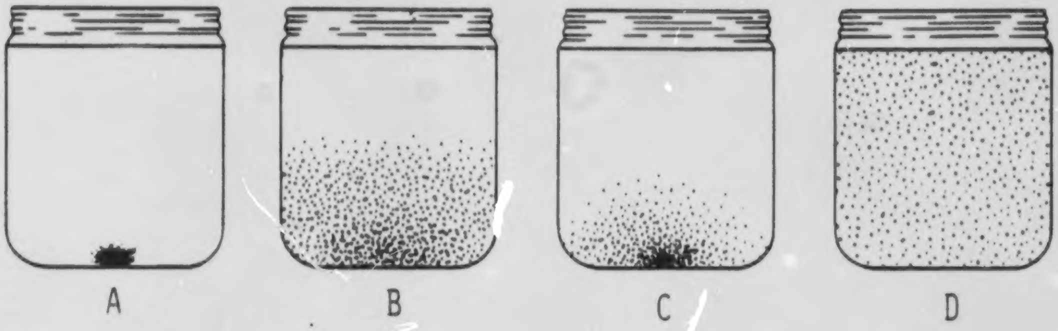
ANSWER:____

____

____

EXAMPLE B

JILL HAD FOUR TABLETS OF EASTER EGG DYE THAT WERE JUST ALIKE. SHE DROPPED ONE TABLET OF EASTER EGG DYE IN EACH OF THE FOUR JARS SHOWN. THE JARS WERE LEFT ALONE FOR TEN MINUTES. EACH JAR HAS THE SAME AMOUNT OF WATER.



WHICH OF THESE SENTENCES MIGHT TELL WHY THE COLOR SPREAD DIFFERENT AMOUNTS IN EACH JAR?

THE JARS HAVE DIFFERENT AMOUNTS OF WATER

MORE COLOR WAS PLACED IN JAR D

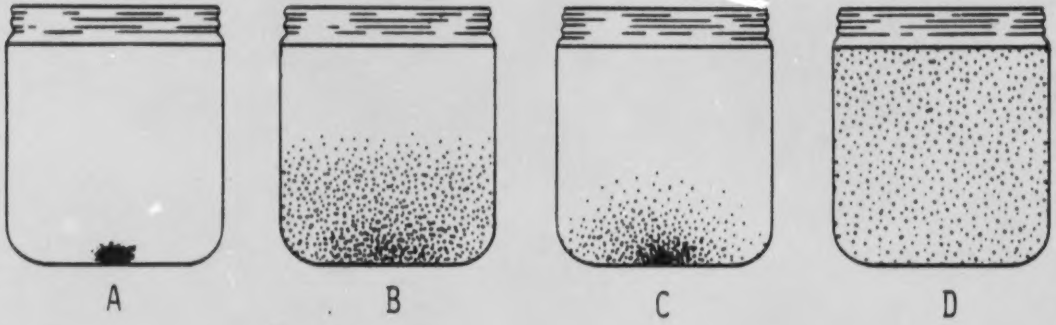
THE WATER IN EACH JAR IS AT A DIFFERENT TEMPERATURE

A DIFFERENT KIND OF TABLET WAS PUT IN JAR A

MARK AN X ON YOUR CHOICE.

ANSWER FOR EXAMPLE B

JILL HAD FOUR TABLETS OF EASTER EGG DYE THAT WERE JUST ALIKE. SHE DROPPED ONE TABLET OF EASTER EGG DYE IN EACH OF THE FOUR JARS SHOWN. THE JARS WERE LEFT ALONE FOR TEN MINUTES. EACH JAR HAS THE SAME AMOUNT OF WATER.



WHICH OF THESE SENTENCES MIGHT TELL WHY THE COLOR SPREAD DIFFERENT AMOUNTS IN EACH JAR?

THE JARS HAVE DIFFERENT AMOUNTS OF WATER

MORE COLOR WAS PLACED IN JAR D

[✓ THE WATER IN EACH JAR IS AT A DIFFERENT TEMPERATURE]

A DIFFERENT KIND OF TABLET WAS PUT IN JAR A

MARK AN X ON YOUR CHOICE.

ANSWER FOR EXAMPLE C

DON, CHIP, BILL, AND PAUL ARE GOING TO RIDE ON BUMPER CARS. THERE ARE ONLY TWO SEATS IN EACH CAR. EACH BOY WANTS TO RIDE WITH EVERY OTHER BOY.

WRITE ALL OF THE POSSIBLE TWO-MAN TEAMS THAT CAN BE FORMED.

ANSWER:

THERE SHOULD BE SIX TEAMS LISTED. THEY ARE:

DON AND CHIP
DON AND BILL
DON AND PAUL
CHIP AND BILL
CHIP AND PAUL
BILL AND PAUL

THERE IS NO TIME LIMIT ON THE QUESTIONS WHICH FOLLOW. YOUR TEACHER WILL READ THROUGH EACH QUESTION FOR YOU. AT THE END OF THE QUESTIONS, YOU WILL BE GIVEN TIME TO GO BACK TO ANY ITEM YOU MAY NOT HAVE COMPLETED THE FIRST TIME.

PLEASE ANSWER EVERY QUESTION.

EXAMPLE C

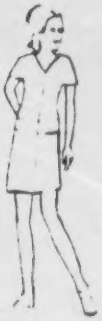
DON, CHIP, BILL, AND PAUL ARE GOING TO RIDE ON BUMPER CARS. THERE ARE ONLY TWO SEATS IN EACH CAR. EACH BOY WANTS TO RIDE WITH EVERY OTHER BOY.

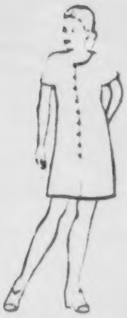
WRITE ALL OF THE POSSIBLE TWO-MAN TEAMS THAT CAN BE FORMED.

ANSWER:

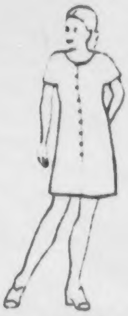
1.

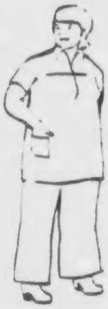
KAREN WEIGHS LESS THAN JOAN.


KAREN


JOAN

JOAN WEIGHS LESS THAN HELEN.


JOAN


HELEN

WHICH ANSWER IS CORRECT?

KAREN WEIGHS LESS THAN HELEN.

JOAN WEIGHS LESS THAN KAREN.

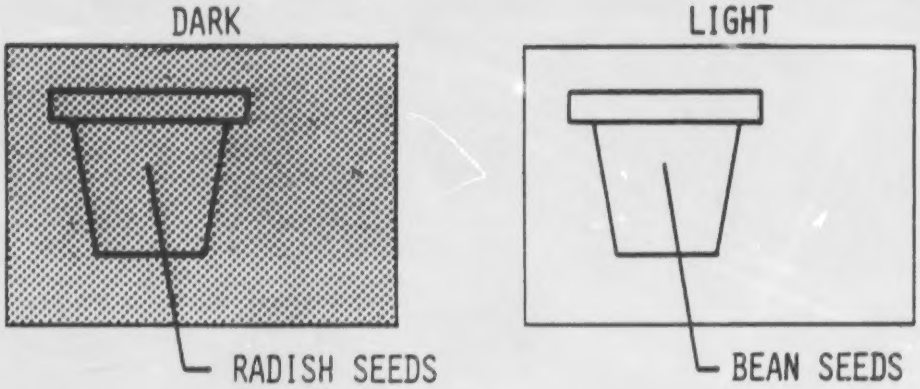
HELEN WEIGHS LESS THAN JOAN.

HELEN WEIGHS LESS THAN KAREN.

NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

2. TOM WANTED TO FIND OUT WHETHER PLANTS CAN GROW BETTER IN THE DARK OR IN THE LIGHT. HE PUT A POT WITH 6 RADISH SEEDS IN A DARK ROOM AND A POT WITH 6 BEAN SEEDS IN THE LIGHT ON THE WINDOW SILL.



HE ADDED THE SAME AMOUNT OF WATER TO BOTH POTS. THE BEAN SEEDS GREW BETTER THAN THE RADISH SEEDS, SO TOM SAID HIS PLANTS GROW BEST IN THE LIGHT.

TO BE ABLE TO SAY THIS, TOM SHOULD HAVE DONE WHAT?

WATERED BOTH POTS MORE.

WATERED THE RADISH SEEDS MORE.

PUT THE SAME KIND OF SEEDS IN BOTH POTS.

GROWN THE SEEDS IN WATER INSTEAD OF SOIL.

I DON'T KNOW.

72

MARK AN X ON YOUR CHOICE.

3. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR THE MICE TO FIGHT WITH EACH OTHER?

THE MICE ARE BROWN, THE MICE ARE OLD, THE MICE HAVE NO FOOD, THE MICE FIGHT WITH EACH OTHER.

THE MICE ARE NOT BROWN, THE MICE ARE OLD, THE MICE HAVE FOOD, THE MICE FIGHT WITH EACH OTHER.

THE MICE ARE BROWN, THE MICE ARE NOT OLD, THE MICE HAVE NO FOOD, THE MICE DO NOT FIGHT.

ANSWER: ______________________________

____

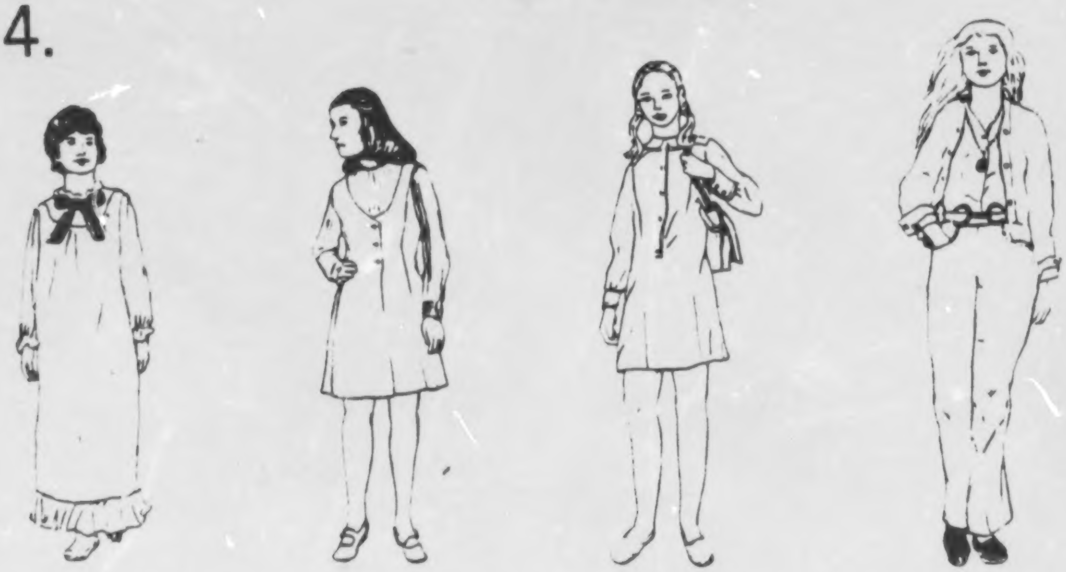
____

EXPLAIN YOUR ANSWER: ______________________________

____

____

4.



MARY IS SHORTER THAN ANN.

ANN IS SHORTER THAN SUSAN.

SUSAN IS SHORTER THAN KATHY.

WHICH ANSWER IS CORRECT?

MARY IS SHORTER THAN KATHY.

KATHY IS SHORTER THAN ANN.

SUSAN IS SHORTER THAN MARY.

ANN IS SHORTER THAN MARY.

NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

5.

ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR THE SEEDS TO GROW WHEN THEY ARE PLANTED?

> THE SEEDS ARE RED, THE SEEDS ARE SMOOTH, THE SEEDS ARE SMALL, THE SEEDS GROW WHEN PLANTED.
>
> THE SEEDS ARE NOT RED, THE SEEDS ARE NOT SMOOTH, THE SEEDS ARE SMALL, THE SEEDS DO NOT GROW WHEN PLANTED.
>
> THE SEEDS ARE NOT RED, THE SEEDS ARE SMOOTH, THE SEEDS ARE LARGE, THE SEEDS GROW WHEN PLANTED.

ANSWER: ____

____

____

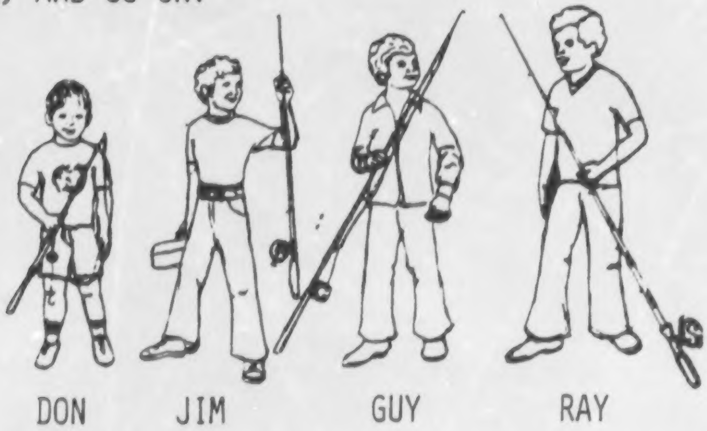
EXPLAIN YOUR ANSWER: ____

____

____

A.6.1974.

DON IS THE SHORTEST OF FOUR BOYS; JIM, THE NEXT SHORTEST; GUY, THE NEXT SHORTEST; AND RAY, THE NEXT SHORTEST. EACH BOY OWNS A FISHING POLE, WITH THE SHORTEST BOY OWNING THE SHORTEST POLE; THE NEXT SHORTEST BOY, THE NEXT SHORTEST POLE; AND SO ON.



WHICH BOY IS THE SECOND SHORTEST AND OWNS THE SECOND SHORTEST FISHING POLE?

JIM

GUY

RAY

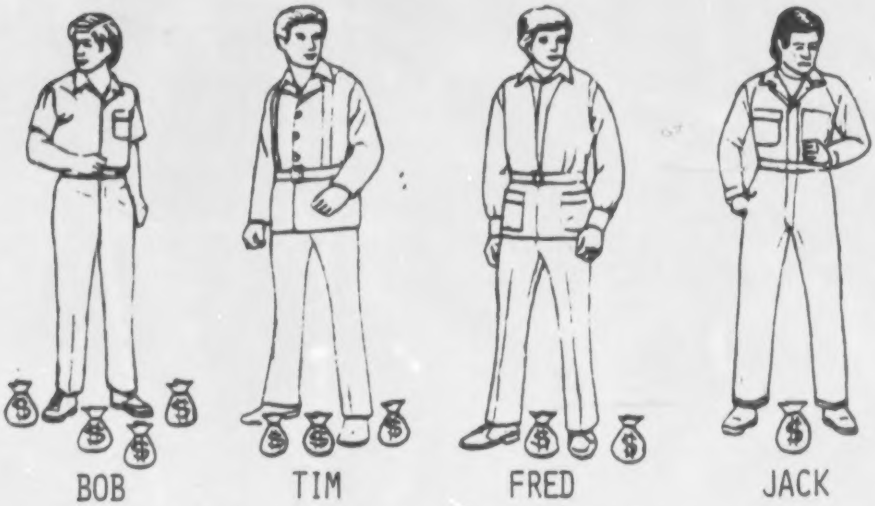
DON

NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

A.7.1974.

BOB IS THE RICHEST OF FOUR MEN; TIM, THE NEXT RICHEST; FRED, THE NEXT RICHEST; AND JACK, THE NEXT RICHEST. THE RICHEST MAN OWNS THE SMALLEST CAR; THE NEXT RICHEST MAN, THE NEXT SMALLEST CAR, AND SO ON.



WHICH MAN OWNS THE SMALLEST CAR AND IS THE RICHEST MAN?

FRED

BOB

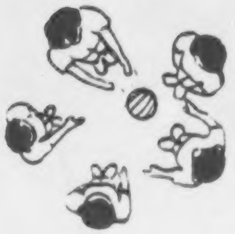
JACK

TIM

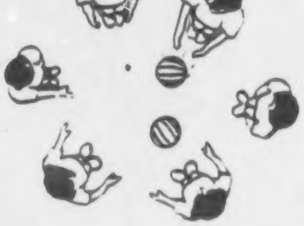
NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

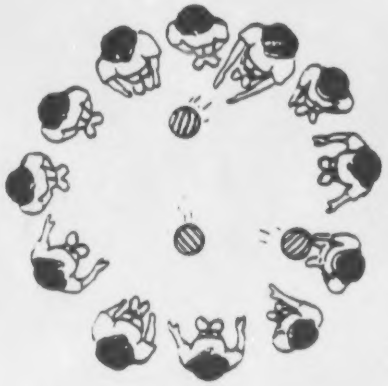
8. DURING RECESS, THREE SEPARATE GROUPS OF CHILDREN WERE FORMED TO PLAY BALL, AS THE PICTURES SHOW. GROUP A WAS MADE UP OF 5 CHILDREN AND 1 BALL. GROUP B WAS MADE UP OF 6 CHILDREN AND 2 BALLS. GROUP C WAS MADE UP OF 12 CHILDREN AND 3 BALLS.



A



B



C

WHICH GROUP OF CHILDREN WOULD IT BE BEST TO JOIN IF ONE WISHED TO CATCH THE BALL MOST OFTEN?

GROUP A

GROUP B

GROUP C

THERE IS THE SAME CHANCE OF CATCHING THE BALL IN EACH GROUP.

NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

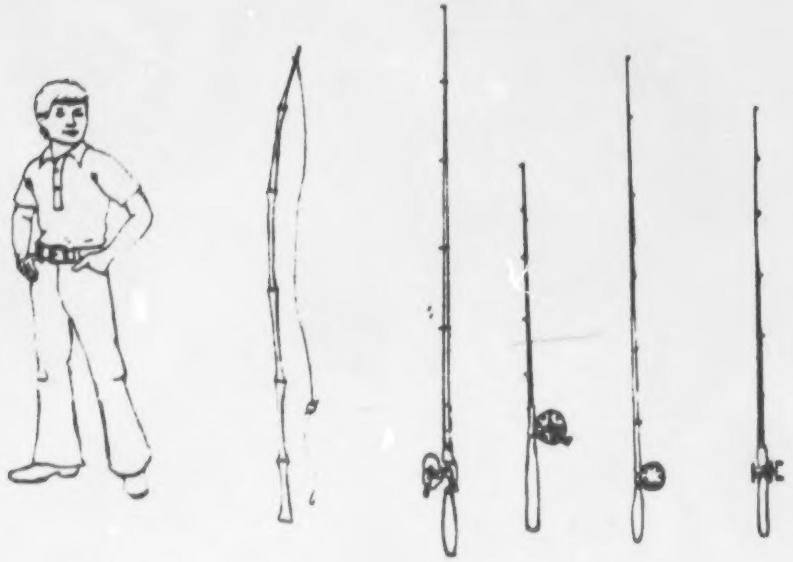
9. FOUR GIRLS ARE GOING TO PLAY CHECKERS WITH EACH OTHER. IN ORDER TO FIND THE BEST PLAYER, EACH GIRL WILL PLAY EVERY OTHER GIRL.

HOW MANY GAMES MUST BE PLAYED IF EACH GIRL IS TO PLAY EVERY OTHER GIRL?

- ☐ 1
- ☐ 4
- ☐ 6
- ☐ 8
- ☐ NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

10. A BOY HAS A CHOICE OF FIVE FISHING POLES. HE WANTS TO TRY OUT EACH POLE BEFORE HE BUYS ANY ONE OF THEM. HOWEVER, HE MAY TRY OUT ONLY ONE POLE A DAY.



HOW MANY DAYS WILL HE NEED TO TRY OUT ALL OF THE POLES?

1 DAY

4 DAYS

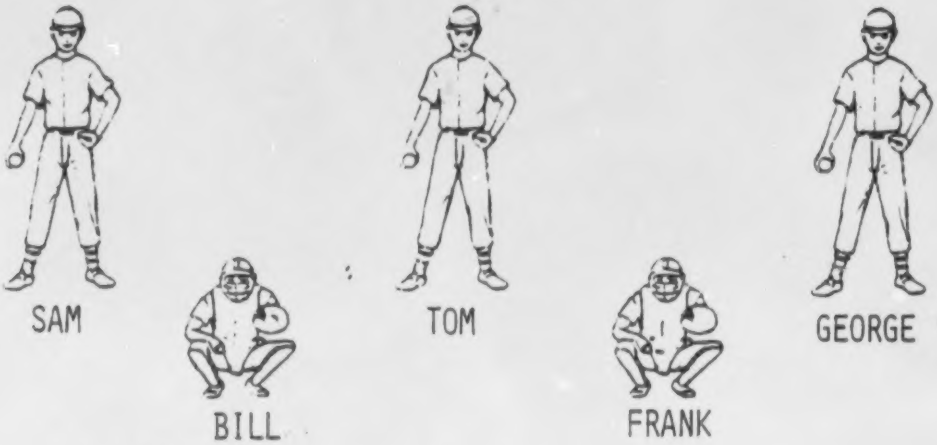
5 DAYS

6 DAYS

NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

11. A BASEBALL MANAGER HAS THREE PITCHERS (SAM, TOM, AND GEORGE) AND TWO CATCHERS (BILL AND FRANK). THE MANAGER WANTS TO FIND THE BEST PAIR OF PITCHER AND CATCHER.



IF EACH PITCHER AND EACH CATCHER IS TO BE GIVEN AN EQUAL CHANCE, HOW MANY PAIRS OF PITCHER AND CATCHER MUST THE MANAGER FORM?

- ☐ 2
- ☐ 3
- ☐ 5
- ☐ 6
- ☐ NONE OF THE ABOVE ANSWERS IS CORRECT.

MARK AN X ON YOUR CHOICE.

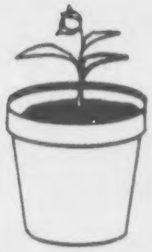
12.

SIX GIRLS (ANN, DOT, LISA, MARY, NELL, SUE) ARE GOING TO PLAY A GAME IN WHICH ONLY 2 CAN PLAY AT A TIME. EACH GIRL WANTS TO PLAY EVERY OTHER GIRL IN THE GROUP.

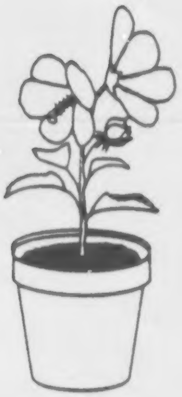
WRITE ALL OF THE POSSIBLE GAMES THAT COULD BE PLAYED IF EACH GIRL PLAYED EVERY OTHER GIRL.

ANSWER:

13.



OCTOBER 23



3 WEEKS LATER

JOE PLANTED A FLOWER ON OCTOBER 23. HE MEASURED HOW TALL IT WAS. THREE WEEKS LATER HE MEASURED IT AGAIN TO SEE HOW MUCH IT HAD GROWN. WHAT DATE WAS IT AT THE END OF THREE WEEKS?

CIRCLE THAT DATE ON THE CALENDAR.

OCTOBER

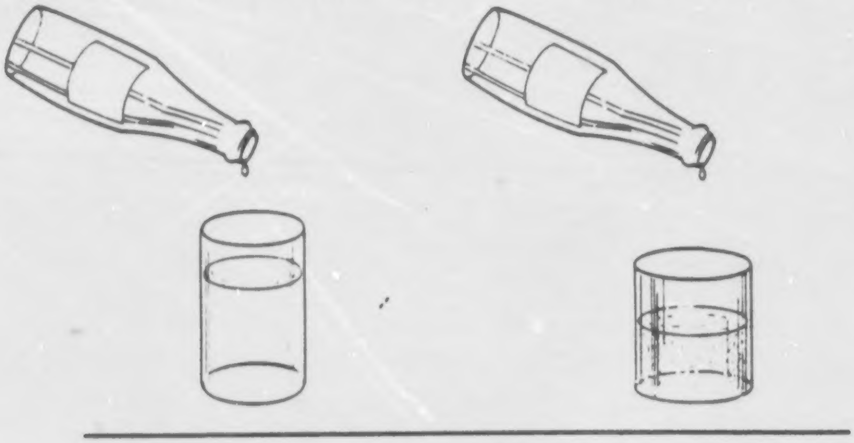
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

14.

SUE AND KAREN WANTED A BOTTLE OF ROOT BEER. THEIR MOTHER POURED ONE BOTTLE INTO A TALL SKINNY GLASS AND THE OTHER BOTTLE INTO A SHORT FAT GLASS AS SHOWN BELOW.



DOES ONE GLASS HAVE MORE ROOT BEER IN IT THAN THE OTHER?

THE TALL GLASS HAS MORE IN IT.

THE SHORT GLASS HAS MORE IN IT.

THEY BOTH HAVE THE SAME AMOUNT.

I DON'T KNOW.

MARK AN X ON YOUR CHOICE.

WHY DID YOU CHOOSE THE ANSWER YOU MARKED?

15.

A DOG HAS FOUR PUPPIES BORN ON THE SAME DAY AND IN THE FOLLOWING ORDER: 1 SPOTTED PUPPY, 1 ALL WHITE PUPPY, 1 BROWN PUPPY, 1 BLACK PUPPY. THE PUPPIES COULD HAVE BEEN BORN IN ANY ORDER.

WRITE ALL OF THE POSSIBLE WAYS IN WHICH THE PUPPIES COULD HAVE BEEN BORN.

IF YOU WOULD LIKE TO GO BACK AND COMPLETE ANY ANSWERS OR CHECK YOUR WORK, YOU MAY DO SO. BE SURE YOU HAVE ANSWERED EVERY QUESTION.

HUMAN SCIENCES

_______________________ **B**

PLEASE PRINT:

NAME: ____________________

SCHOOL: ____________________

DATE OF BIRTH: ____________
month/day/year

BOY: ______ GIRL: ______

DATE: ____________________

HOW IS YOUR LOGIC?

THIS BOOKLET IS PART OF THE HUMAN SCIENCES PROGRAM. YOUR ANSWERS ARE IMPORTANT ONLY TO THE WRITERS AND WILL NOT BE USED BY YOUR TEACHER FOR ANY PURPOSE.

SOME OF THE PROBLEMS IN THIS BOOKLET ARE SIMPLE, SOME ARE MORE DIFFICULT. SOME PRESENT FACTS, AND YOU HAVE TO MAKE A CONCLUSION. SOME ASK YOU TO LOOK AT DRAWINGS AND CHECK AN ANSWER. SOME WILL SEEM LIKE ARITHMETIC PROBLEMS, BUT YOU DON'T NEED TO DO ANY ARITHMETIC TO ANSWER THEM. OTHERS ASK YOU TO ANSWER A PROBLEM AND GIVE A REASON. THERE ARE 15 PROBLEMS. PLEASE ANSWER ALL OF THEM. YOU WILL HAVE ALL PERIOD TO ANSWER. THERE WILL BE TIME TO GO BACK TO ANY ITEMS YOU WISH AFTER ALL QUESTIONS HAVE BEEN READ.

PLEASE COMPLETE THE INFORMATION SECTION ABOVE BEFORE BEGINNING THE BOOKLET.

EXPERIMENTAL EDITION, MAY 1974

EXAMPLE A

ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR ED TO LIKE SUSAN?

JOHN LIKE MARY, BILL LIKES ANN, AND ED LIKES SUSAN.

JOHN LIKES MARY, BILL DOES NOT LIKE ANN, AND ED LIKES SUSAN.

JOHN DOES NOT LIKE MARY, BILL LIKES ANN, AND ED DOES NOT LIKE SUSAN.

ANSWER: ______________________________

____

____

ANSWER FOR EXAMPLE A

ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR ED TO LIKE SUSAN?

JOHN LIKES MARY, BILL LIKES ANN, AND ED LIKES SUSAN.

JOHN LIKES MARY, BILL DOES NOT LIKE ANN, AND ED LIKES SUSAN.

JOHN DOES NOT LIKE MARY, BILL LIKES ANN, AND ED DOES NOT LIKE SUSAN.

ANSWER: THE CORRECT ANSWER IS "JOHN LIKES MARY."

EXAMPLE B

CHUCK AND JIM ARE PLAYING A CARD GAME CALLED "BATTLE." AT THE BEGINNING OF THE GAME, CHUCK AND JIM EACH HAVE 26 CARDS. IN THE 26 CARDS THAT CHUCK HAS, THERE ARE 3 KINGS; AND IN THE 26 CARDS THAT JIM HAS, THERE IS ONE KING. EACH PLAYER WILL TURN OVER ONE CARD AT THE SAME TIME. WHO HAS MORE OF A CHANCE OF TURNING OVER A KING IN THE FIRST "BATTLE?"

ANSWER: ____

ANSWER FOR
EXAMPLE B

CHUCK AND JIM ARE PLAYING A CARD GAME CALLED "BATTLE." AT THE BEGINNING OF THE GAME, CHUCK AND JIM EACH HAVE 26 CARDS. IN THE 26 CARDS THAT CHUCK HAS, THERE ARE 3 KINGS; AND IN THE 26 CARDS THAT JIM HAS, THERE IS ONE KING. EACH PLAYER WILL TURN OVER ONE CARD AT THE SAME TIME. WHO HAS MORE OF A CHANCE OF TURNING OVER A KING IN THE FIRST "BATTLE?"

ANSWER: THE CORRECT ANSWER IS "CHUCK."

EXAMPLE C

DON, CHIP, BILL, AND PAUL ARE GOING TO RIDE ON BUMPER CARS. THERE ARE ONLY TWO SEATS IN EACH CAR. EACH BOY WANTS TO RIDE WITH EVERY OTHER BOY.

WRITE ALL OF THE POSSIBLE TWO-MAN TEAMS THAT CAN BE FORMED.

ANSWER:

ANSWER FOR
EXAMPLE C

DON, CHIP, BILL, AND PAUL ARE GOING TO RIDE ON BUMPER CARS. THERE ARE ONLY TWO SEATS IN EACH CAR. EACH BOY WANTS TO RIDE WITH EVERY OTHER BOY.

WRITE ALL OF THE POSSIBLE TWO-MAN TEAMS THAT CAN BE FORMED.

ANSWER: THERE SHOULD BE SIX TEAMS LISTED:

DON AND CHIP
DON AND BILL
DON AND PAUL
CHIP AND BILL
CHIP AND PAUL
BILL AND PAUL

THERE IS NO TIME LIMIT ON THE QUESTIONS WHICH FOLLOW. YOUR TEACHER WILL READ THROUGH EACH QUESTION FOR YOU. AT THE END OF THE QUESTIONS, YOU WILL BE GIVEN TIME TO GO BACK TO ANY ITEM YOU MAY NOT HAVE COMPLETED THE FIRST TIME.

PLEASE ANSWER EVERY QUESTION

1. PAUL IS HEAVIER THAN KEN.
KEN IS HEAVIER THAN JOHN.
JOHN IS HEAVIER THAN RON.

IS PAUL HEAVIER THAN RON?

ANSWER:____

2. MIKE IS BIGGER THAN AL.
AL IS BIGGER THAN SAM.
SAM IS BIGGER THAN TOM.

IS MIKE BIGGER THAN TOM?

ANSWER:____

3. BOB IS THE RICHEST OF FOUR MEN; JIM, THE NEXT RICHEST; LLOYD, THE NEXT RICHEST; AND TIM, THE NEXT RICHEST. THE RICHEST MAN OWNS THE SMALLEST CAR; THE NEXT RICHEST MAN, THE NEXT SMALLEST CAR, AND SO ON.

WHO OWNS THE SMALLEST CAR?

ANSWER:____

4. A GIRL WANTS TO BUY A SKIRT. SHE HAS FOUND EIGHT SKIRTS THAT SHE LIKES AND WOULD LIKE TO TRY THEM ON TO SEE WHICH ONE LOOKS THE BEST ON HER. SHE CAN ONLY TRY ON ONE AT A TIME. IT TAKES HER ONE MINUTE TO TRY ON A SKIRT.

HOW MANY MINUTES WILL IT TAKE HER TO TRY ON ALL OF THE THE SKIRTS?

ANSWER: ______________________________

5. A COACH HAS A CHOICE OF FOUR PLAYERS. HE WANTS TO GIVE EACH PLAYER THE SAME CHANCE OF MAKING THE TEAM. HE LETS EACH PLAYER PLAY FOR ONE WEEK.

HOW MANY WEEKS WILL THE COACH NEED IF EACH PLAYER IS TO HAVE THE SAME CHANCE OF MAKING THE TEAM?

ANSWER: ______________________________

6. A GROUP OF FRIENDS DECIDE TO GO DANCING. THERE ARE THREE MEN (AL, BOB, AND CHUCK) AND THREE WOMEN (LOUISE, MARSHA, AND NANCY). EACH MAN WANTS TO DANCE WITH EACH WOMAN.

WRITE ALL OF THE POSSIBLE MAN-WOMAN COUPLES OF DANCERS THERE COULD BE IF EACH MAN DANCED WITH EACH WOMAN.

ANSWER:

7. JOE IS THE FASTEST OF FOUR MEN; BILL, THE NEXT FASTEST; KEN, THE NEXT FASTEST; AND DAVE, THE NEXT FASTEST. THE FASTEST MAN HAS THE SMALLEST FEET; THE NEXT FASTEST MAN, THE NEXT SMALLEST FEET, AND SO ON.

WHO HAS THE SECOND SMALLEST FEET?

ANSWER: ______________________________

____

8. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR THE HUSBAND TO LIVE?

THE MAID LIKES HER JOB, THE WIFE FAINTS, THE COOK RUNS OUT THE DOOR, AND THE HUSBAND LIVES.

THE MAID LIKES HER JOB, THE WIFE DOES NOT FAINT, THE COOK DOES NOT RUN OUT THE DOOR, AND THE HUSBAND LIVES.

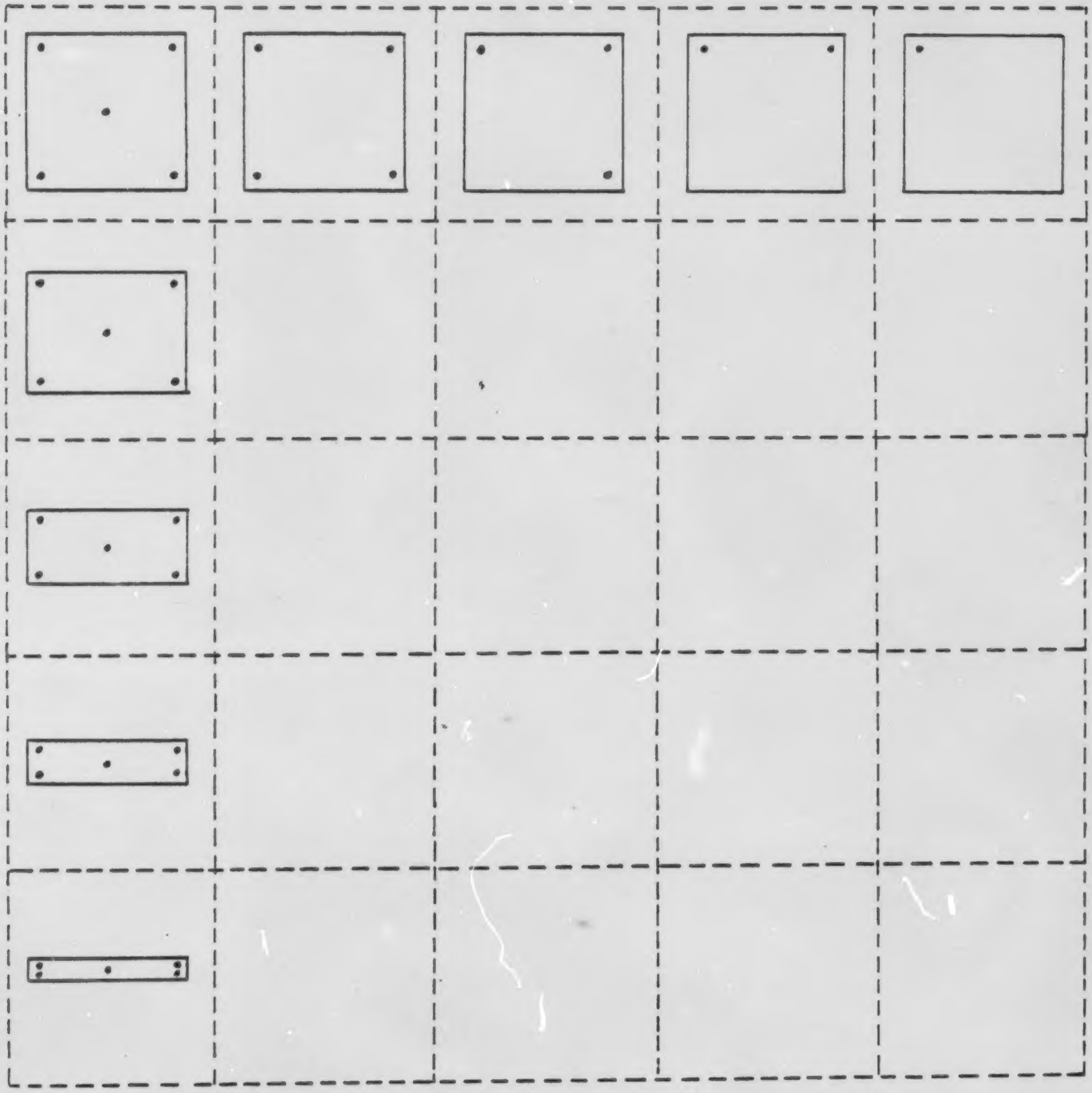
THE MAID DOES NOT LIKE HER JOB, THE WIFE FAINTS, THE COOK DOES NOT RUN OUT THE DOOR, AND THE HUSBAND DOES NOT LIVE.

ANSWER: ______________________________

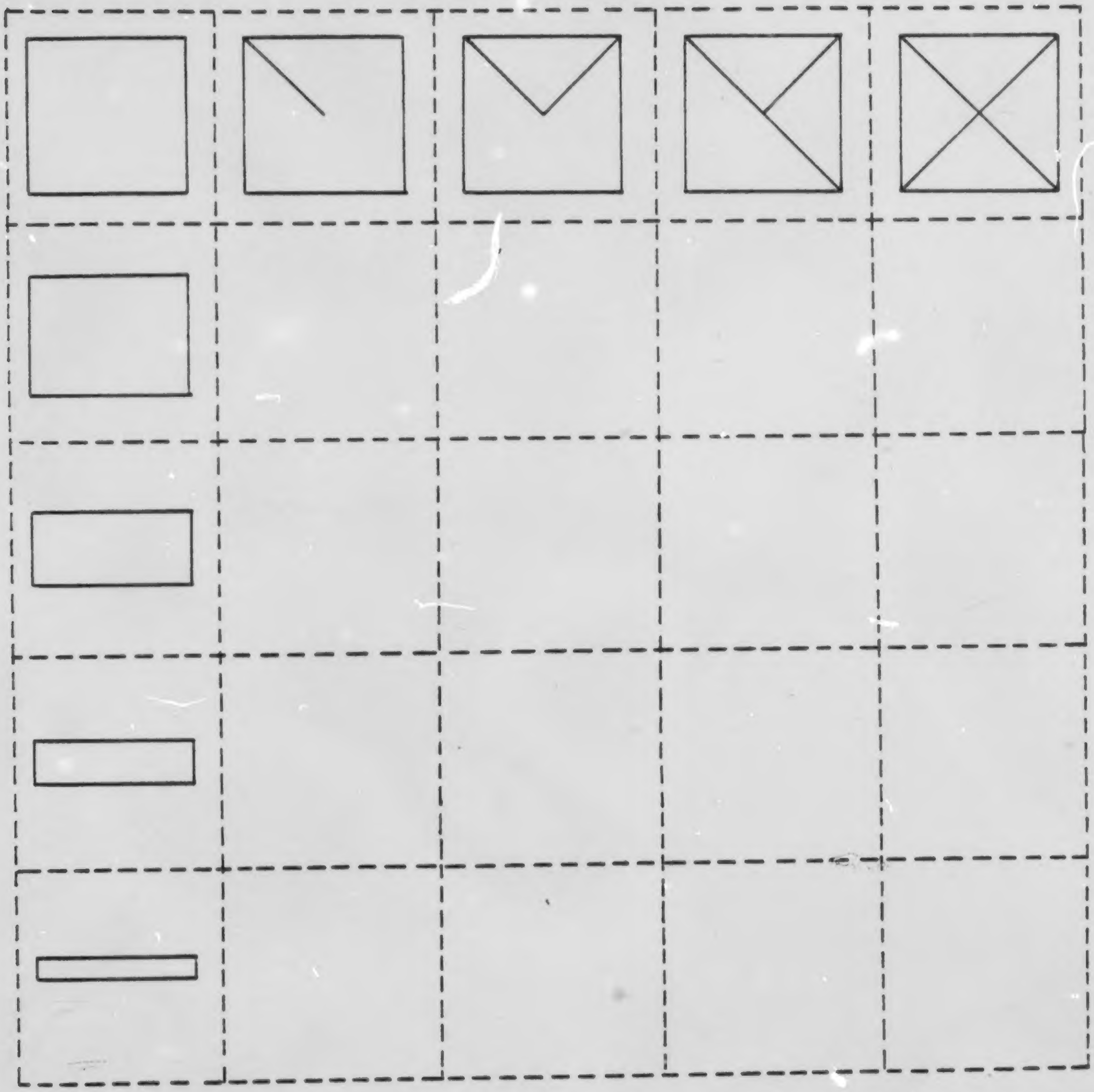
____

____

9. FINISH THE FOLLOWING PICTURE AS YOU THINK IT SHOULD BE DONE.



10. FINISH THE FOLLOWING PICTURE AS YOU THINK IT SHOULD BE DONE.



11. A BASEBALL MANAGER HAS THREE PITCHERS (SAM, TOM, AND GEORGE) AND TWO CATCHERS (BILL AND FRANK). THE MANAGER WANTS TO FIND THE BEST PAIR OF PITCHER AND CATCHER.

WRITE ALL OF THE POSSIBLE PAIRS OF PITCHER AND CATCHER THERE COULD BE IF EACH PITCHER THREW TO EACH CATCHER.

ANSWER:

12. TWO GROUPS OF CHILDREN ARE GOING SWIMMING. TEACHERS ARE GOING WITH THEM AND WILL WATCH THEM. THE FIRST GROUP IS MADE UP OF 12 CHILDREN AND 2 TEACHERS. THE SECOND GROUP IS MADE UP OF 18 CHILDREN AND 3 TEACHERS.

IN WHICH GROUP IS EACH TEACHER IN CHARGE OF THE FEWEST CHILDREN?

ANSWER:

EXPLAIN YOUR ANSWER: ______________________________

____

____

13. SEVEN MEN (JIM, KEN, LEO, MEL, NED, PAUL, AND TOM) ARE GOING TO RACE EACH OTHER. ONLY TWO MEN CAN RACE AT A TIME. EACH MAN WANTS TO RACE EVERY OTHER MAN.

WRITE ALL OF THE POSSIBLE RACES THAT COULD BE RUN IF EACH MAN RACED EVERY OTHER MAN.

ANSWER.

14. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR THERE TO BE GOOD WEATHER?

CHARLIE IS SWIMMING, DAVE IS NOT BOATING, KEN IS PLAYING IN THE SAND, AND THERE IS GOOD WEATHER.

CHARLIE IS NOT SWIMMING, DAVE IS BOATING, KEN IS NOT PLAYING IN THE SAND, AND THERE IS NOT GOOD WEATHER.

CHARLIE IS NOT SWIMMING, DAVE IS BOATING, KEN IS NOT PLAYING IN THE SAND, AND THERE IS GOOD WEATHER.

CHARLIE IS SWIMMING, DAVE IS NOT BOATING, KEN IS PLAYING IN THE SAND, AND THERE IS NOT GOOD WEATHER.

ANSWER: ______________________________

____

____

EXPLAIN YOUR ANSWER: ______________________________

____

____

15. FOUR COMPANIES (FORD, G.E., IBM, POST) ARE GOING TO HAVE OFFICES ON THE FIRST FOUR FLOORS OF A NEW BUILDING. EACH COMPANY MAY CHOOSE ANY OF THE FLOORS FOR ITS OFFICES. NO TWO COMPANIES CAN BE ON THE SAME FLOOR.

WRITE ALL OF THE POSSIBLE WAYS THAT THE COMPANIES' OFFICES COULD BE ARRANGED ON THE FLOORS.

ANSWER:

IF YOU WOULD LIKE TO GO BACK AND COMPLETE ANY ANSWERS OR CHECK YOUR WORK, YOU MAY DO SO. BE SURE YOU HAVE ANSWERED EVERY QUESTION.

Human Sciences
Biological Sciences Curriculum Study
Boulder, Colorado

INSTRUCTIONS FOR ADMINISTERING THE SENTENCE COMPLETION EXERCISE

A. The Exercise

How a student perceives himself and his world is very important information for curriculum developers as they write their programs. A person's view of himself and his world has been found to move through stages or levels as he moves through his life. The enclosed instrument titled "Sentence Completion Exercise" is a measure of a person's level of development. It is not a test where there are right or wrong answers. The sentence completion form and the concept of self-perception are not directly related to the Human Sciences curriculum. However, this information may be useful in directing further efforts in curriculum development.

B. Design

The sentence completion exercise contains 36 sentence stems which the student is asked to finish. There is a separate form for boys and girls. The exercise is in two parts, each with 18 sentence stems. (The theoretical framework and development of the instrument was done by J. Loevinger & R. Wessles and is described in Measuring Ego Development, Jossey-Bass, Inc. 1970.)

C. Plans for Administering, Collecting, Scoring, and Analysis

Procedure: The following instructions should be used in administering the forms. These instructions should be read to the students when they have received the form. We assume that minor variations in the instructions do not matter.

Please give Part I first. Give Part II the next day, or skip one day. There are Boys' Forms and Girls' Forms for this exercise. Part I is blue in color. Part II is salmon.

> Teacher: (Hand out the forms.) Please write your name and the other information in the spaces provided. Now I would like you to fill out this sentence completion form. Complete each sentence in any way you wish. You see these are incomplete sentences. Please finish each one. There are no right or wrong answers. Notice that there are 18 sentences to complete. Please make sure you have completed each sentence by writing in the space provided.

Responses to be used by the teacher if students request further help in completing the form:

> Please finish the sentence in any way you wish. [or]
> There are no right or wrong answers.
> [In answer to the question, "who is 'she' or 'he'?"]:
> It can mean anyone. [or]
> Just think of it as anyone you wish.

The exercise will probably take about 30 minutes. There is no time limit. Make arrangements for students to do independent work when they complete this exercise.

Scoring and Analysis: These forms will be confidentially and individually scored by raters trained in identifying levels of personal development. The actual results will be examined to see how the students' level of personal development changes over a period of one, two, or three years.

BL:JTR:cl
HSP:5/15/74

Human Sciences

GIRLS' FORM SENTENCE COMPLETION EXERCISE, PART I

Hi, Sentence Completer!

This is Part I of an exercise for you to finish some sentences. Would you please fill in the following information:

NAME________________________________

SCHOOL______________________________

TEACHER_____________________________

DATE________________________________

If you are a girl, the top of this page should say GIRLS' FORM SENTENCE COMPLETION EXERCISE, PART I. If it says BOYS' FORM SENTENCE COMPLETION EXERCISE, PART I, please raise your hand for the teacher.

You have as much time as you need. Turn to page one and follow the directions.

Thank you,

The Friendly Sentence Starter

Biological Sciences
Curriculum Study
Boulder, Colorado

Experimental Edition, May 1974

SENTENCE COMPLETION EXERCISE FOR GIRLS, PART I

Complete the following sentences in any way that you wish. You see that these are incomplete sentences. Please finish each one. There are no right or wrong answers. When you have finished the sentences on the first page, go on to the next.

1. Raising a family

2. Most men think that women

3. When they avoided me

4. If my mother

5. Being with other people

6. The thing I like about myself is

7. A girl has a right to

8. When I get mad

9. My mother and I

10. What gets me into trouble is

11. Education

12. When people are helpless

13. Women are lucky because

14. When I am criticized

15. My father

16. Rules are

17. If I had more money

18. When my mother spanked me, I

Human Sciences

GIRLS' FORM SENTENCE COMPLETION EXERCISE, PART II

Hi again, Sentence Completer!

Thanks for your cooperation with Part I. Please fill in the following information:

NAME______________________________
SCHOOL____________________________
TEACHER___________________________
DATE______________________________

Be sure you have Part II of the Girls' Form. If you don't, raise your hand to get the correct form.

You have as much time as you need. Please turn to page one and follow the directions.

Thank you,

The Friendly Sentence Starter

Biological Sciences
Curriculum Study
Boulder, Colorado

Experimental Edition, May 1974

SENTENCE COMPLETION EXERCISE FOR GIRLS, PART II

Complete the following sentences in any way that you wish. You see that these are incomplete sentences. Please finish each one. There are no right or wrong answers. When you have finished the sentences on the first page, go on to the next.

1. A wife should

2. I feel sorry

3. When I am nervous, I

4. When a child will not join in group activities

5. Men are lucky because

6. At times she worried about

7. I am

8. A woman feels good when

9. My main problem is

10. Whenever she was with her mother, she

11. Sometimes she wished that

12. A good mother

13. The worst thing about being a woman

14. When she thought of her mother, she

15. If I can't get what I want

16. For a woman a career is

17. My conscience bothers me if

18. A woman should always

cl
HSP:5/15/74

Human Sciences

BOYS' FORM SENTENCE COMPLETION EXERCISE, PART I

Hi, Sentence Completer!

This is Part I of an exercise for you to finish some sentences. Would you please fill in the following information:

NAME________________________________

SCHOOL______________________________

TEACHER_____________________________

DATE________________________________

If you are a boy, the top of this page should say BOYS' FORM SENTENCE COMPLETION EXERCISE, PART I. If it says GIRLS' FORM SENTENCE COMPLETION EXERCISE, PART I. Please raise your hand for the teacher.

You have as much time as you need. Turn to page one and follow the directions.

Thank you,

The Friendly Sentence Starter

Biological Sciences
Curriculum Study
Boulder, Colorado

Experimental Edition, May 1974

SENTENCE COMPLETION EXERCISE FOR BOYS, PART I

Complete the following sentences in any way that you wish. You see that these are incomplete sentences. Please finish each one. There are no right or wrong answers. When you have finished the sentences on the first page, go on to the next.

1. Raising a family

2. When a child will not join in group activities

3. When they avoided me

4. A man's job

5. Being with other people

6. The thing I like about myself is

7. If my mother

8. If I can't get what I want

9. When I was younger

10. Education

11. When people are helpless

12. Women are lucky because

13. What gets me into trouble is

14. A good father

15. If I were king

16. A wife should

17. I feel sorry

18. A man should always

114

cl
HSP:5/15/74

BOYS' FORM SENTENCE COMPLETION EXERCISE, PART II

Hi again, Sentence Completer!

Thanks for your cooperation with Part I. Please fill in the following information:

NAME_______________________________

SCHOOL_____________________________

TEACHER____________________________

DATE_______________________________

Be sure you have Part II of the Boys' Form. If you don't, raise your hand to get the correct form.

You have as much time as you need. Please turn to page one and follow the directions.

Thank you,

The Friendly Sentence Starter

Biological Sciences
Curriculum Study
Boulder, Colorado

Experimental Edition, May 1974

SENTENCE COMPLETION EXERCISE FOR BOYS, PART II

Complete the following sentences in any way that you wish. You see that these are incomplete sentences. Please finish each one. There are no right or wrong answers. When you have finished the sentences on the first page, go on to the next.

1. Rules are

2. He felt so proud that he

3. Men are lucky because

4. My father and I

5. A man feels good when

6. When I get mad

7. At times he worried about

8. When his wife asked him to help with the housework

9. My main problem is

10. When I am criticized

11. Sometimes he wished that

12. A husband has a right to

13. When he thought of his mother, he

14. The worst thing about being a man

15. If I had more money

16. I just can't stand people who

17. My conscience bothers me if

18. Crime and delinquency could be halted if

cl
HSP:5/15/74

Biological
Sciences
Curriculum
Study

[illegible] South Boulder Road
Phone (303) [illegible]

P.O. Box 930, Boulder, Colorado 80302

MEMORANDUM

TO: Trial Teachers

FROM: Human Sciences Staff

DATE: May 2, 1974

SUBJECT: Additional Activity for GROWING

Enclosed are Teacher Instructions and materials for an activity to be added to the GROWING module. The activity involves a Human Sciences class survey. When the survey is completed, please return all the survey sheets in the enclosed mailer. It is important that your name be on the survey sheets so as to avoid any confusion of data. The information to be gathered is critical for the seventh-grade writing teams, and prompt return would be appreciated.

Speaking of GROWING, it will be sent out the week of May 6th. Thanks for your continued patience and cooperation.

ACS:cl

DEVELOPING HUMAN SCIENCES

STUDENT ACTIVITY

BSCS STAFF

Jim Eckenrod

Jim Robinson

Fred Rasmussen

Anne Seitz

Dorothy Schlitt

®

Bob Vasconcellos

Debby Puckett

DEVELOPING HUMAN SCIENCES

You or a friend can play the role of a BSCS Human Sciences Consultant or staff member.

MATERIALS

- Survey Sheets
- Pencil
- Clipboard

BACKGROUND

Imagine that you are a BSCS Development Consultant and your task is to learn about Human Sciences students' reactions to several important questions. The questions that need to be asked of the students will help the seventh-grade writers and consultants write and produce interesting and important activities for seventh-grade Human Sciences students.

The task of developing the seventh-grade modules is extremely important because it will affect many hundreds of students around the United States.

OPERATION

If several students are interested in conducting the survey, make different survey groups or teams with each team using a separate survey form.

Read the survey question slowly and clearly allowing time for each student to think out his or her answers.

The name of the student is for your use. Do not interview a student more than once.

When the surveys are over, the survey teams may want to discuss the information received and add some of their own thoughts in special reports for the Human Sciences staff.

When all the steps are completed, please return all the survey forms and any other information you think important to the Human Sciences staff.

You will see the results of your work in next year's modules.

TYPES OF SURVEYS

What I Would Like to See in the Modules Next Year, (kinds of activities, special interests)

Activities I Did Like, (from sixth-grade modules)

Activities I Didn't Like, (from sixth-grade modules)

The Modules I Liked Best, (from sixth-grade modules)

SURVEY SHEET

DEVELOPING HUMAN SCIENCES

ACTIVITIES I DID LIKE

TO THE INTERVIEWER: It is important that each student you interview answer each question without thinking about the question beforehand. Be sure to interview each student individually. Write down the first activity mentioned under #1, the second under #2, and third #3. Write the reason the student didn't like the first activity.

Student's Name	Which activities in the sixth-grade modules did you like?			Reasons
	1	2	3	

SURVEY SHEET

DEVELOPING HUMAN SCIENCES

ACTIVITIES I DIDN'T LIKE

TO THE INTERVIEWER: It is important that each student you interview answer each question without thinking about the question beforehand. Be sure to interview each student individually. Write down the first activity mentioned under #1, the second under #2, and the third under #3. Write the reason the student didn't like the first activity.

Student's Name	Which activities in the sixth-grade modules did you not like?			Reasons
	1	2	3	

SURVEY SHEET

DEVELOPING HUMAN SCIENCES

THE MODULES I LIKED BEST

Which of the sixth-grade modules did you like the best? Write the number for your choices (1 = first choice, 2 = second, 3 = third, 4 = fourth, and 5 = last choice) next to the module title in the column labeled ORDER.

Student's Name	Module	Order	Reason
	SURVIVAL		
	BEHAVIOR		
	GROWING		
	LEARNING		
	SENSE...OR NONSENSE?		
	SURVIVAL		
	BEHAVIOR		
	GROWING		
	LEARNING		
	SENSE...OR NONSENSE?		
	SURVIVAL		
	BEHAVIOR		
	GROWING		
	LEARNING		
	SENSE...OR NONSENSE?		
	SURVIVAL		
	BEHAVIOR		
	GROWING		
	LEARNING		
	SENSE...OR NONSENSE?		
	SURVIVAL		
	BEHAVIOR		
	GROWING		
	LEARNING		
	SENSE...OR NONSENSE?		
	SURVIVAL		
	BEHAVIOR		
	GROWING		
	LEARNING		
	SENSE...OR NONSENSE?		

WHAT I WOULD LIKE TO SEE IN THE MODULES NEXT YEAR

Student's Name	Kinds of Activities or Special Interests I want most.

KEY FOR COMPLETING HUMAN SCIENCES QUESTIONNAIRE

Please have respondendents complete the informational section of the Optical Scanning Corporation form as follows:

Name

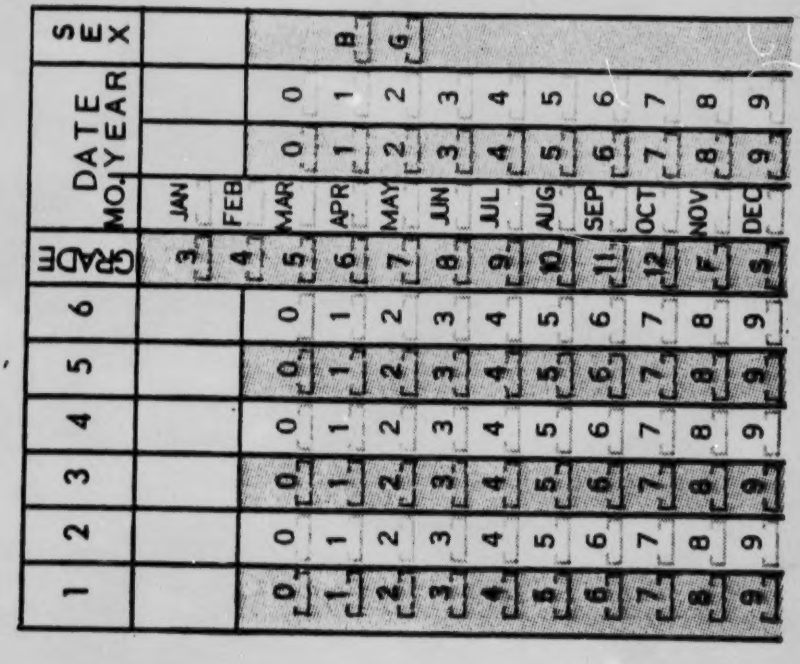
Simply follow the directions printed on the form; last name, first name, middle initial

Other Data

Grade	Teachers, mark grade level taught Principals, mark "F" Others, mark "S"
Date	Mark in month and last two digits of year of birth
Sex	Men, mark "B" (1) Women, mark "G" (2)
Social Security No.	LEAVE BLANK

Six Unmarked Columns

Column 1	1 = Queens D & I Center 2 = L.S.U. D & I Center 3 = U.T.S.A. D & I Center 4 = W.W.S.C. D & I Center
Column 2 and 3	01-99 Local schools; Assign at each D & I Center, PLEASE ADVISE ME OF CODE NUMBER FOR EACH SCHOOL
Column 4 and 5	01-99 Number of years of classroom teaching experience
Column 6	1-9 Years in present school 0 Ten or more years


SEX
B
G
DATE
MO.
YEAR
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
GRADE
3
4
5
6
7
8
9
10
11
12
F
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4
3
2
1
0
1
2
3
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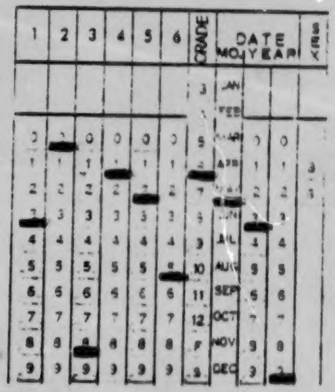
7
8
9

EXAMPLE


1
2
3
4
5
6
GRADE
DATE
MO.
YEAR
SEX

Column 1	U.T.S.A.
2 & 3	School assigned code # 08
4 & 5	12 years of teaching experience
6	5 years in present school
Grade	Sixth grade teacher
Date	Born in May of 1939
Sex	Female

QUESTIONNAIRE ON ASSUMPTIONS ABOUT LEARNING AND KNOWLEDGE*

BSCS Human Sciences Program Curriculum Dissemination and Implementation Centers

Instructions: Make a mark on the scale at right that best represents your own feelings about each statement.

ASSUMPTIONS ABOUT CHILDREN'S LEARNING	Strongly Disagree 1	Disagree 2	No Strong Feeling 3	Agree 4	Strongly Agree 5
Motivation					
1. Children are innately curious and will explore their environment without adult intervention.					
2. Exploratory behavior is self-perpetuating.					
Conditions for Learning					
3. The child will display natural exploratory behavior if he is not threatened.					
4. Confidence in self is highly related to capacity for learning and for making important choices affecting one's learning.					
5. Active exploration in a rich environment, offering a wide array of manipulative materials, will facilitate children's learning.					
6. Play is not distinguished from work as the predominant mode of learning in early childhood.					
7. Children have both the competence and the right to make significant decisions concerning their own learning.					
8. Children will be likely to learn if they are given considerable choice in the selection of the materials they wish to work with and in the choice of questions they wish to pursue with respect to those materials.					
9. Given the opportunity, children will choose to engage in activities which will be of high interest to them.					

*From Roland S. Barth, "Open Education," unpublished doctoral dissertation, Harvard Graduate School of Education, 1970.

	Strongly Disagree	Disagree	No Strong Feeling	Agree	Strongly Agree
10. If a child is fully involved in and is having fun with an activity, learning is taking place.					
Social Learning					
11. When two or more children are interested in exploring the same problem or the same materials, they will often choose to collaborate in some way.					
12. When a child learns something which is important to him, he will wish to share it with others.					
Intellectual Development					
13. Concept formation proceeds very slowly.					
14. Children learn and develop intellectually not only at their own rate but in their own style.					
15. Children pass through similar stages of intellectual development, each in his own way and at his own rate and in his own time.					
16. Intellectual growth and development take place through a sequence of concrete experiences followed by abstractions.					
17. Verbal abstractions should follow direct experience with objects and ideas, not precede them or substitute for them.					
Evaluation					
18. The preferred source of verification for a child's solution to a problem comes through the materials he is working with.					
19. Errors are necessarily a part of the learning process; they are to be expected and even desired, for they contain information essential for further learning.					
20. Those qualities of a person's learning which can be carefully measured are not necessarily the most important.					

	Strongly Disagree	Disagree	No Strong Feeling	Agree	Strongly Agree
21. Objective measures of performance may have a negative effect upon learning.					
22. Learning is best assessed intuitively, by direct observation.					
23. The best way of evaluating the effect of the school experience on the child is to observe him over a long period of time.					
24. The best measure of a child's work is his work.					

ASSUMPTIONS ABOUT KNOWLEDGE

25. The quality of being is more important than the quality of knowing; knowledge is a means of education, not its end. The final test of an education is what a man is, not what he knows.					
26. Knowledge is a function of one's personal integration of experience and therefore does not fall into neatly separate categories or "disciplines."					
27. The structure of knowledge is personal and idiosyncratic; it is a function of the synthesis of each individual's experience with the world.					
28. Little or no knowledge exists which it is essential for everyone to acquire.					
29. It is possible, even likely, that an individual may learn and possess knowledge of a phenomenon and yet be unable to display it publicly. Knowledge resides with the knower, not in its public expression.					

ASSUMPTION ABOUT YOURSELF

	Not all → Very much				
	1	2	3	4	5
30. In looking back over the 29 items above, how willing are you to work with a curriculum program that was based upon strong agreement with each of the statements?					

Name ______________________________

GOALS OF EDUCATION

Please write the letters from the Goals of Education cards in the order that you decide upon in the spaces provided below. Cut out the cards and sort them. For each time that you sort the cards, write in the person or persons suggested by the interviewer.

	RANK ORDER OF CARDS	YOUR PERSONAL PREFERENCES				
LEAST IMPORTANT ←→ MOST IMPORTANT	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					

JSE:cl
HSP: 4/29/74

GOALS OF EDUCATION	A
Education should provide a student with the knowledge, skills and moral rules that he or she will need as an adult member of society.	
GOALS OF EDUCATION	B
Education should help a student develop self-confidence, spontaneity, curiosity, and self-discipline.	
GOALS OF EDUCATION	C
Education should help a student develop a personal standard of competency to judge his or her own thinking and judgment.	

GOALS OF EDUCATION D

Education should provide a student with experiences that allow the student to test the adequacy of his or her thinking in a variety of situations.

GOALS OF EDUCATION E

Education should provide a student with experiences that allow the student to perform at the level typical of his or her age period.

GOALS OF EDUCATION F

Education should provide a student with regular measures of his or her achievement relative to other students.

GOALS OF EDUCATION G

Education should help a student develop progressively more complex ways of logical thinking and moral reasoning.

GOALS OF EDUCATION H

Education should help a student develop acceptable standards of honesty, service, and self control.

GOALS OF EDUCATION I

Education should provide a student with experiences that allow him or her to recognize and learn correct answers to problems.

GOALS OF EDUCATION J

Education should help a student develop his or her moral character in accordance with accepted social standards.

GOALS OF EDUCATION K

Education should help a student develop the ability to reflect upon and make up his or her own mind about controversial social issues.

GOALS OF EDUCATION L

Education should provide a student with information about her or his potential for success in college or university studies.

Biological
Sciences
Curriculum
Study

[illegible] South Boulder Road
[illegible]

P.O. Box 930, Boulder, Colorado 80302

22 November 1974

TO: D & I Centers

FROM: Jim Eckenrod

RE: Feedback questionnaires

Please administer the enclosed questionnaire to the teachers and principals, supervisors, etc., who are participants in your workshop at the earliest opportunity and return the completed questionnaires to me. Please note that the questionnaires for teachers and others are slightly different.

To date I have received the completed survey on open classroom attitudes only from the UTSA and WWSC Centers. Would the others please send them on as soon as possible?

You are welcome to look over the enclosed questionnaires after they have been completed by your participants or, if you like, I can make copies of them for you for your use. Another possibility is if you make copies and send me one set.

I have completed my visits to the Queens, LSU, and UTSA Centers thus far; only Western Washington to go on 7 - 10 December. I'll summarize my impressions after that trip and begin to prod you about our agenda for meeting in Chicago, 12-15 February 1974.

Happy Thanksgiving!

QUESTIONNAIRE FOR PRINCIPALS, SUPERVISORS, OTHERS

Human Sciences Program Workshop

Please check one:

☐ W.W.S.C ☐ L.S.U.

☐ Queens ☐ U.T.S.A.

1. Please indicate your judgment about the helpfulness to the teachers in your team in preparing to teach the Human Sciences materials by marking along the scale for each of the following aspects of your workshop experience:

	No Help At All	-	Some Help	-	Very Much Help
	1	2	3	4	5
a. Summer workshop (overall effect)					
b Inservice sessions (overall effect)					
c. Interaction with BSCS Teacher Associate					
d. Teaching demonstrations by D & I Center staff					
e. Information about HSP from D & I Center staff					
f. Other information from D & I Center Staff					
g. Visits to D & I Center Demonstration School					
h. BEHAVIOR module Teachers Guide					
i. Interaction with D & I Center staff (overall)					
j. Interaction with (name)					
k. " " "					
l. " " "					
m. Visit by BSCS Consultant to inservice session					
n. Other aspects					
o. " "					
p. " "					
q. " "					
r. " "					

2. What aspects of the workshop program do not seem to be relevant to the teaching of the Human Sciences Program? ______________________________

3. What aspects of the inservice sessions do not seem to be relevant to the teaching of the Human Sciences Program? ______________________________

4. How can the staff of the D & I Center be of more help to you in meeting your needs regarding teaching the Human Sciences Program in your school?

5. Do you have any other comments or suggestions? ______________________

Thank you very much.

WHAT IS YOUR OPINION
OF HUMAN SCIENCES?

ALL OF THE STATEMENTS IN THIS SURVEY QUESTIONNAIRE ARE THINGS THAT HAVE BEEN SAID ABOUT THE HUMAN SCIENCES PROGRAM BY STUDENTS, TEACHERS, PARENTS, OR SCHOOL PRINCIPALS. WHAT DO YOU THINK? DO YOU AGREE OR DISAGREE WITH THE STATEMENTS? DO YOU AGREE A LITTLE? DO YOU AGREE A LOT? FOR EACH STATEMENT MAKE AN "X" IN THE BOX UNDER THE STATEMENT THAT BEST TELLS YOUR OPINION: STRONGLY AGREE, AGREE, DISAGREE, STRONGLY DISAGREE.

IF YOU DO NOT HAVE AN OPINION OR DO NOT KNOW ABOUT A STATEMENT, YOU SHOULD MARK THE BOX UNDER THE STATEMENT, "DON'T KNOW."

WHEN YOU HAVE MARKED YOUR OPINIONS FOR ALL OF THE STATEMENTS, PLEASE WRITE DOWN ANY IDEAS THAT YOU HAVE ABOUT THE HUMAN SCIENCES THAT WERE NOT GIVEN IN THE STATEMENTS. THERE ARE SPACES PROVIDED FOR YOU TO WRITE YOUR STATEMENTS. ASK THE INTERVIEWER FOR MORE PAPER IF YOU NEED SOME.

Check one ☐ STUDENT

☐ TEACHER

☐ PARENT

☐ ADMINISTRATOR

JSE:CL
HSP/4/30/74

WHAT IS YOUR OPINION OF HUMAN SCIENCES?

		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE	DON'T KNOW
1.	Students in regular sciences classes learn more than students in the Human Sciences classes.					
2.	Teachers of the Human Sciences rely on students to care for the plants and animals.					
3.	During Human Sciences classes, students spend their time doing things that are not important.					
4.	Students often have difficulty getting the materials needed to do Human Sciences activities.					
5.	Most of the parents of students in the Human Sciences want their sons or daughters to be able to take Human Sciences in the seventh grade.					
6.	The Human Sciences helps students become responsible for their own learning.					
7.	It is harder for teachers to grade students in the Human Sciences than in other courses.					
8.	Students don't learn as many important science facts in Human Sciences as they would in regular science courses.					

		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE	DON'T KNOW
9.	Teachers should pick out the Human Sciences activities that are best for each student.					
10.	Many students in Human Sciences classes waste their time when they get to choose what they do.					
11.	Students in Human Sciences classes aren't learning things that will help them in their high school science courses.					
12.	The teachers of the Human Sciences classes would rather teach the program than regular science programs.					
13.	Most of the parents of students in the Human Sciences classes don't know much about what their sons or daughters are learning.					
14.	The teachers of the Human Sciences ought to let students decide which activities they want to do and how they want to do them.					
15.	Students in the sixth grade are old enough to know what they want to learn in Human Sciences.					
16.	The Human Sciences does not give enough attention to important science activities such as dissecting animals.					
17.	Most students in the sixth grade are not ready to really understand concepts such as magnetism.					

		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE	DON'T KNOW
18.	Teachers should decide what Human Science activities should be done and teach one activity at a time to the whole class.					
19.	More attention to science topics such as weather or chemistry should be included in Human Sciences.					
20.	Most students in the sixth grade are not really interested in the study of topics such as weather or chemistry.					
21.	Human Sciences allows students to look for answers to questions that they decide are important to answer.					
22.	Students in the Human Sciences have more opportunity to learn from each other than in other science classes.					
23.	Teachers should tell students what activities they should do in the Human Sciences.					
24.	Most of the parents of students in the Human Sciences think that their sons or daughters really enjoy the Human Sciences.					
25.	The teachers of the Human Sciences classes think that sixth-grade students are able to make good choices about things to study in the Human Sciences.					

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE	DON'T KNOW
26.					
27.					
28.					
29.					
30.					
31.					
32.					
33.					

☐ BOY ☐ GIRL

WHAT IS YOUR OPINION OF HUMAN SCIENCES?

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE	DON'T KNOW		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE	DON'T KNOW
1.						26.					
2.						27.					
3.						28.					
4.						29.					
5.						30.					
6.						31.					
7.						32.					
8.						33.					
9.						34.					
10.						35.					
11.						36.					
12.						37.					
13.						38.					
14.						39.					
15.						40.					
16.						41.					
17.						42.					
18.						43.					
19.						44.					
20.						45.					
21.						46.					
22.						47.					
23.						48.					
24.						49.					
25.						50.					

Level II, 1973-74

Description of the Evaluation Materials

Four modules, RULES, WHERE DO I FIT?, PERCEPTION, and REPRODUCTION, were field tested in seventh grade classes during the academic year 1974-75.

Instructions to teachers and students about the evaluation activities for each module were prepared. Reproduction of these materials, the former from the teachers guide for each module and the latter from individual booklets for each student, are reproduced in this section. The only evaluation component not included here is the "Record" or folder that each student used to keep track of dates when an activity was begun, when it was finished, and some comment about it. Data from the folder were gathered on "activity record" forms of several types, all of which are included here.

Coding criteria for free-response and essay problems are included when they were developed. If protocols are not included for coding responses, they were not developed.

All evaluation activities in Level II were specific to the field test modules. There was no beginning or end of year assessment

FACILITATING SELF-EVALUATION

A major focus of evaluation in the seventh-grade program is student self-evaluation.[10]

The Human Sciences Program stresses goals of growth in student

...self esteem
...interests and competencies
...ability to take the viewpoint of others
...social competencies
...cognitive abilities
...moral reasoning
...independence of thought
...self-evaluation

Self-evaluation will be carried out systematically by students, both individually and in a small Review Team group structure.

The following materials are provided for evaluation:

RULES RECORD: (One per student) This is printed on card stock and will need to be folded by students. Instructions are in EVALUATING YOUR PROGRESS. RULES RECORD is printed with activity titles in problem areas.

EVALUATING YOUR PROGRESS: (One per student) A booklet of instructions for self-evaluation and Review Team activities.

MY ACTIVITY RECORD: (Three pads) There is a pad of forms for each problem area.

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[10] For a more detailed discussion of evaluation in the Human Sciences Program in general, and for the rationale behind the use of student self-evaluation, please refer to the Evaluation section in *With Learning in Mind: A Guide for Human Sciences Teachers.*

CHOOSE YOUR PROBLEM WORK SHEETS: These are printed on NCR (carbon) paper; white, with a yellow record sheet. Students may need help on their use and may damage a sheet or two at first.

EVALUATION CARDS: Eight sets each for Is There a Rule? What Should I Do? and How Do Rules Change?

Copies of these materials immediately follow this section of this teachers guide.

RULES RECORD folders should be made available to students on the first or second class period of the RULES module. Instructions for folding RULES RECORD are in EVALUATING YOUR PROGRESS, which needs to be made available at the same time.

Setting the tone for you and the class mutually working together to "figure out" how evaluating is to be done in the RULES module is very critical. This stance, rather than one where you tell them how it will be done, will be consistent with the pedagogy of Human Sciences.[11]

The evaluation materials do not provide a way to transform evaluation materials into grades. This will vary with school policy. Other evaluation materials and processes you and your class may need, and the rules by which evaluation materials and data are transformed into grades (if necessary) will need to be worked out by you and your students.

Each RULES RECORD contains space to maintain a record of activities that have been done. This log functions as evidence of what the student has done each day. Encourage the systematic maintenance of such a record by providing time for its thoughtful use. If students prefer to keep additional forms of evidence, such as more detailed diaries, journals, pictorial records, charts, or tape recordings, encourage such creativity. The important thing to stress is regular record-keeping. This record should aid the student and you. It should be helpful during parent conferences and for other "public" uses of evaluation data. The folder has a pocket for students to store evaluation forms and products from activities. As students work though the module, we suggest that you encourage them to keep at least one "activity product"--the one they value most--from each problem area. They may wish to keep all data sheets and written materials developed in the module.

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[11] *Ibid.*

In summary, the RULES RECORD folder is the student's responsibility, prepared to show others what he or she has done. It will serve as a source of information at the conclusion of each problem area. It is to be retained in the classroom for the year, along with evaluation records for the remaining modules.

EVALUATION ACTIVITIES

Evaluation activities, beyond record-keeping in RULES RECORD, are provided for each problem area--Is There a Rule? What Should I Do? and How Do Rules Change? The activities should be done when you and your students are ready to change problem areas. All students do not have to have completed all the activities they wish to do in a problem area when the decision is made to open up a new problem area for study.

Please schedule two consecutive class periods for Is There a Rule? evaluation activities when most students want to start What Should I Do? The first period is for individual self-evaluation activities: MY ACTIVITY RECORD and CHOOSE YOUR PROBLEM.

SELF-EVALUATION

MY ACTIVITY RECORD forms are in pads in the module box. This form is strictly for BSCS use. The RULES RECORD is the data source for each student to use in completing it. Help students understand the need for care in completing this form. Only one copy is made and that is to be mailed to BSCS.

CHOOSE YOUR PROBLEM asks each student to select one or two problems to solve. These problems provide an opportunity for students to show what they have learned from a problem area. This activity should aid the student in reflecting upon the learning experiences that he or she has had. Many students may have difficulty in doing this at first, and your encouragement will be needed to help them develop this capability.

CHOOSE YOUR PROBLEM WORK SHEETS are in pads in the module box and should be filled out in duplicate with the student retaining one copy (white) and the other (yellow) to be collected for mailing to BSCS

REVIEW TEAMS

As an additional part of the evaluation process, as well as for pedagogical and governance purposes, we recommend the use of small group Review Teams. A Review Team is a group of four (to perhaps six, if you have very large classes) students who will remain in the same group for one module and will meet for about one class period when most students have "finished" with a problem area.

You can have each student write out a list of three or four other students he or she would like to work with on a Review Team. Do this early in the module. You can then take their choices and actually form the groups. You may need to have teams with different numbers, some with five students, some with four, for example.

The Review Teams will solve problems and share in the evaluation process. Along with individual self-evaluation, a small group can become a supportive structure to encourage thoughtful evaluation and reflection. In a small group students can test ideas, share experiences (both positive and negative), receive feedback from other students about their own behavior, assume responsibility for solving problems related to classroom functioning, and grow in social competence and in the ability to understand the viewpoint of others.

Students will have opportunities to grow in group membership and discussion skills by assuming roles of group leader and member. By rotating Review Team membership, students will have the opportunity to relate to many other class members in a personal way. The Review Team will serve as a reference group to relate to during a module, as well as providing a variation from the emphasis on individual and two-member teams.

Discuss the function of the team leader, and have groups choose the leader for the first session. Since this can become a lengthy process in itself, suggest that it be done quickly by volunteering, or, if there is much hesitancy about this, by drawing straws. In subsequent sessions, the leadership roles should be rotated among group members. However, it is probably unwise to coerce all students into being leader if some are unwilling to do so.

You might find it helpful to serve as facilitator for the process of moving through the various tasks of the Review Team, making necessary clarifications and serving a timekeeping function so the activity moves along. One class period is suggested for this Review Team activity, but allow more time if you feel it is necessary. Allow time for the sharing of concerns of individual teams with the class group if this seems useful.

Each Review Team will need one envelope labeled "Evaluation Cards." The cards are color-coded for each problem area. Directions for their use are explained in EVALUATING YOUR PROGRESS.

Review Team Evaluation Sheets are needed for use by each member of the Review Team. We have chosen this design so that each member of the Review Team will have a record in his/her RULES RECORD of the work of the team.

Each Review Team should assemble all materials to be sent to BSCS, staple them together, and turn them over to a class member who can check them over and then put them in the mailer. They should collect the following at the conclusion of each problem area:

1. One copy of MY ACTIVITY RECORD for each student.
2. One copy (Copy 2--yellow carbon) of each CHOOSE YOUR PROBLEM WORK SHEET required by the CHOOSE YOUR PROBLEM activity for each student.
3. One copy (Copy 2--yellow carbon) of each Review Team Evaluation Sheet for each student.

Three pre-paid mailers are enclosed for returning evaluation materials. Note the RULES RECORD with student copies is not to be sent to BSCS, but is for use in your school.

Your suggestions as to ways of improving these evaluation forms and processes are always welcomed.

You and your students are assisting in the development of a new interdisciplinary curriculum designed to meet the needs, interests, and concerns of early adolescents. As learners and critics, you can help yourselves and the Biological Sciences Curriculum Study by careful attention to the comments you return to us. Your verbal exchanges can be beneficial to everyone in the classroom. It is only your written comments and suggestions that can influence the direction this curriculum will take. We anticipate receiving these suggestions after your evaluation activity for each problem area. Thanks very much for your cooperation.

The Human Sciences Staff

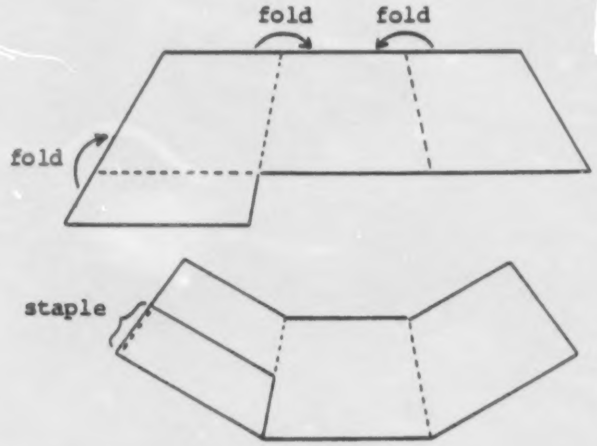
EVALUATING YOUR PROGRESS

The Human Sciences Program is trying new ways for you to learn. New ways of learning require new ways to show what you are learning. The BSCS staff needs your help in developing better ways for you to show what you are learning.

The RULES module has two kinds of evaluation activities. One kind you will do by yourself. The second kind will be done in a Review Team of four to six students. The materials have never been used before, so we need your comments about them.

The Human Sciences Program encourages you to become responsible for your own learning instead of leaving that responsibility with your teacher. Taking this responsibility requires that you become a record keeper. The alternative is for your teacher to give tests and quizzes and keep records about you.

Your daily responsibility will be to keep your RULES RECORD Up to date. The RULES RECORD is creased for folding. Fold up the pocket, and tape or staple it along the left edge.

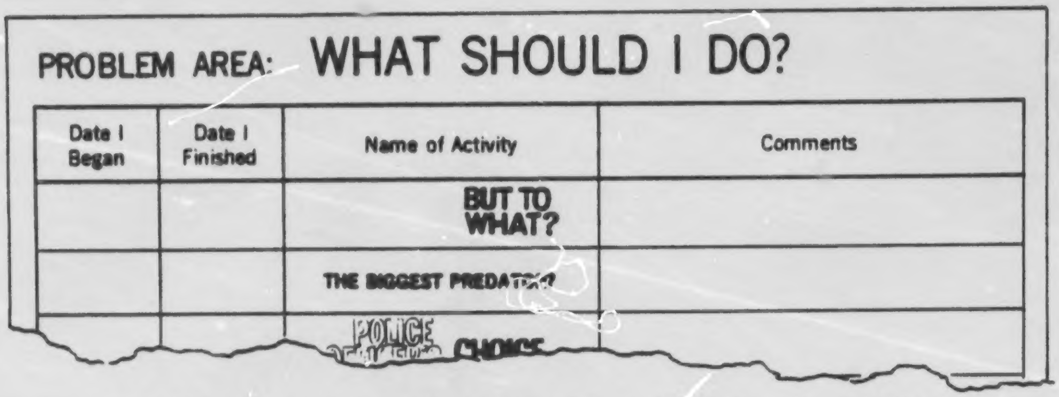


Put your name and the other information requested on the front of your RULES RECORD folder. You will need the information in your RULES RECORD to do your first evaluation task.

An important goal of Human Sciences is to help you develop skills in self-evaluation. To help you with this goal, we ask that you do several evaluation activities. When you have done all the activities you want to do in a problem area, let your teacher know so an evaluation period can be scheduled.

Self-Evaluation Activities

1. RULES RECORD. Put in the date you started an activity in the space beside the activity title. Record the date you completed the activity. Be accurate. This information is a very important record for you to find out how much time you are spending on activities that are important to you. It is a also a record of your progress to show your teacher and your parents.



PROBLEM AREA: WHAT SHOULD I DO?

Date I Began	Date I Finished	Name of Activity	Comments
		BUT TO WHAT?	
		THE BIGGEST PREDATOR?	
		POLICE [illegible] CHOICE	

You will keep your RULES RECORD and evaluation materials for other modules for the entire year. Keep all of your evaluation activities for RULES in the pocket of your RULES RECORD.

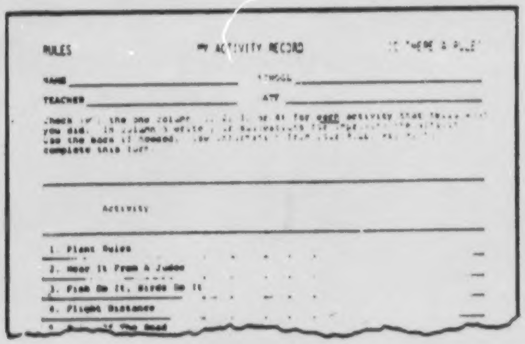
You will find your RULES RECORD very important when you discuss your progress and help determine your grade for Human Sciences. You will also need it to show your parents what you have done.

Think of your RULES RECORD as a collection of materials that represents you to other people. You will want to keep only your best things in RULES RECORD.

2. **A SAMPLE OF YOUR WORK.** As you choose and work on activities in a problem area, choose your one best product to save. This could be a data form, a report, a story, a poem, a drawing, something you made, or photographs. If what you save is big and bulky, you might want to keep it at home. But, you will want to have it with you when you discuss what you have learned with your teacher, to show it and explain it.

3. **MY ACTIVITY RECORD.** There are three different ACTIVITY RECORD forms in the module box. One form is for the problem area Is There a Rule? One is for What Should I Do? And the last one is for How Do Rules Change? Be sure you use the right form at the right time. Put a check in column 1, 2, 3, or 4 for each activity. Use your RULES RECORD chart for information.

By filling out these sheets you are giving the BSCS staff members the information they need for improving the activities. The completed form should be turned in to your Review Team leader for mailing to BSCS.



RULES MY ACTIVITY RECORD

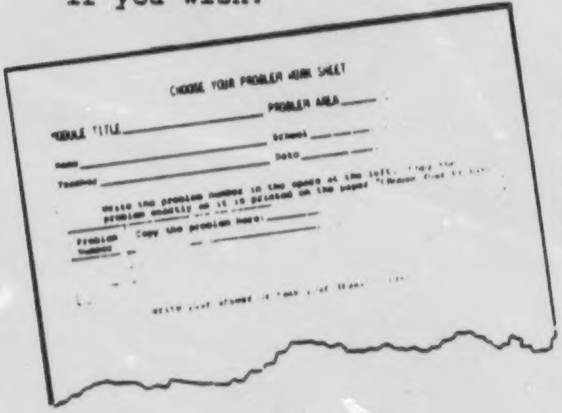
NAME ____ SCHOOL ____

TEACHER ____ DATE ____

Activity

1. Plant Rules
2. Hear It From A Judge
3. Fish Do It, Birds Do It
4. Flight Distance

4. **CHOOSE YOUR PROBLEM.** This activity provides a choice of things to do. You will have most of a class period to do them. You can look at the problems and think about them beforehand if you wish.



CHOOSE YOUR PROBLEM WORK SHEET

PROBLEM AREA ____

MODULE TITLE ____ School ____

Name ____ Date ____

Teacher ____

Problem Number

Copy the problem here: ____

CHOOSE YOUR PROBLEM WORK SHEETS are printed on NCR paper. This paper is a kind of carbon paper. You will need two sheets--a white and a yellow. Make sure the white and yellow sheets line up on top of each other. When you write on the white copy, check to see that you're writing hard enough to make a good copy on the yellow sheet. The white copy is for you to keep in your RULES RECORD. The yellow copy is to be given to your Review Team leader to be sent to BSCS.

5. **REVIEW TEAMS.** A Review Team is a group of four to six students who will meet to discuss, evaluate, and plan the Human Sciences Program. The Team will meet near the end of each problem area to do several of the following things:

-discuss what the problem area was about
-exchange ideas about activities done
-help BSCS in evaluation
-solve problems when they occur
-plan for future needs

Everyone will be a member of a Review Team. You may choose who you would like to be with on your first Review Team. You and your team will meet three times during the first module--at the end of each problem area. You do not have to work together on activities.

With each new module, new Review Teams will be formed. Later, you will need to decide as a class how to form other Review Teams so you can work with different persons for each module.

Each time your Review Team meets, quickly decide on a LEADER for that session. The first time a Review Team meets, someone could volunteer, or you could draw straws. From then on, this job should be rotated so everyone has a chance to do it. The job of the LEADER is to keep the group meeting moving and to the point, and to encourage all members to express their own ideas.

When you are ready to form your Review Team groups, give your teacher a list of the names of five kids with whom you would like to work.

INDIVIDUAL EVALUATION ACTIVITIES

On the first day scheduled for evaluation, you will need to get a MY ACTIVITY RECORD SHEET form for the appropriate problem area. Use the information from your RULES RECORD to fill out the sheet. Fill it out carefully.

Now read over CHOOSE YOUR PROBLEM for the same problem area. It will tell you how many problems you will need to do. For each problem you do, you will need a pair (one white, one yellow) of CHOOSE YOUR PROBLEM WORK SHEETS. (Remember, the white copy is yours to keep and the yellow copy is sent to BSCS.) You may want to do some thinking and writing or drawing and sketching before you make your final copy on the CHOOSE YOUR PROBLEM WORK SHEETS. Use scratch paper until you are ready for your final answer.

CHOOSE YOUR PROBLEM

Select any two of the following problems. Solve the problem on the CHOOSE YOUR PROBLEM WORK SHEET. Use a separate pair of NCR work sheets for each problem. Be sure to write or draw with enough pressure to make a good second copy.

1. Write an explanation of a new rule you found out about in Is There a Rule?
2. Make a drawing to show a new rule you identified in Is There a Rule?.
3. Write a rule that you found out about in Is There a Rule? and design a new way to test the rule (a way not included in any act activities).
4. Write a description of something important that you can do now that you couldn't do before you did the activities in Is There a Rule?
5. Write a description of a story you read about in Is There a Rule? and explain what it meant to you, or, how you felt about it when you read it.
6. Write (or make a drawing) to show how rules are alike, or different for people as compared to plants or animals.
7. Write about, or make a drawing to show, the relationships of ideas among the activities you did in Is There a Rule?
8. Think about this statement: Rules apply to people, but not to animals, plants, or physical objects. Write a page about why you agree or disagree with the statement.
9. Write a question or problem that you think is a better problem than any of those above, tell why you think it is better, and then answer it.

Select any one of the following problems. Solve the problem on the CHOOSE YOUR PROBLEM WORK SHEETS. Use a pair of NCR work sheets for the problem. Be sure to write or draw on the first copy with enough pressure to make a good second copy. Keep the white copy in your RULES RECORD and send the yellow copy to BSCS. Use your RULES RECORD folder as a source of information if you need it.

1. Did you like doing the CHOOSE YOUR PROBLEM problems for Is There a Rule? Give reasons for your answer. Give at least one suggestion for a better way for you to show what you have learned.
2. Look at what you wrote on either problem you chose for Is There a Rule? If you now see a better way to solve the problem, write or draw your new solution.
3. Write out completely three suggestions for better ways for you to show evidence of your work than the nine suggestions given for Is There a Rule?
4. Write an explanation of the most interesting activity you completed in What Should I Do?
5. Write from three to five questions that have been raised by the activities you completed in What Should I Do? Give a reason for the importance of each question.

CHOOSE YOUR PROBLEM

Select any two of the following problems. Solve the problem on the CHOOSE YOUR PROBLEM WORK SHEET. Use a separate pair of NCR work sheets for each problem you do. Be sure to write or draw with enough pressure to make a good second copy. Keep the white copy in your RULES RECORD and send the yellow copy to BSCS. Use your RULES RECORD folder as a source of information when you need it. You may want to do some writing or drawing on scratch paper before you write or draw your final answer on NCR paper.

1. How helpful has your Review Team been? Explain the good parts of the Review Team activities and those that aren't so good. If you think Review Teams should not be kept, suggest an evaluation activity to take its place.
2. Write about a change in rules that was interesting to you. Describe the rule, how it changed, and how you know that it changed.
3. Look over all the activities in RULES. Take three or four activities and make a sketch or diagram to show how the main point of each activity was related to the other activities. Be sure to include an explanation with a sketch or diagram.
4. Write about or draw a picture of any rule you learned about in the RULES module. Tell why the rule is important to you.
5. Show how a rule you learned about in RULES changed. You can do this by writing a poem, a short play, a story, or any other way you can think of that can be done on the CHOOSE YOUR PROBLEM WORK SHEET.
6. Explain a "rule" that animals, plants, and people all have to obey. How does the "rule" apply to all of them? When does the rule not apply?
7. Tom, age 12, has an older brother, age 16, and a younger brother, age 7. Should the same family rule apply to all three brothers? Write a family rule that applies to you. Explain why the rule should or should not apply to all the brothers.
8. Sue, age 12, has an older sister, age 16, and a younger sister, age 7. Should the same family rule apply to all three sisters? Write a family rule that applies to you. Explain why the rule should or should not apply to all the sisters.

9. In many towns and cities boys have been able to play Little League Baseball, but girls have not. Give reasons about why girls should or should not be allowed to play.

10. Why do people make rules? What would it be like if there were no rules in your Human Sciences classroom? Would life for you be better or worse? Give reasons for your answers.

11. Write or draw a picture of a place with no rules. What would life be like there? Would it be better or worse than here?

12. Describe a rule from the RULES module. How was it or how can it be changed?

REVIEW TEAM EVALUATION

Review Teams will each need a table or floor area where they can work together. The Team leader will need to get one of the envelopes labeled EVALUATION CARDS from the module box.

Take the cards from the module box. The cards from the module box. The cards from Is There a Rule? are white; the cards from What Should I Do? are pink; and the cards from How Do Rules Change? are yellow. The green card is for the integrative activity "Selur Island." Take out the cards for the problem area you are reviewing. Return the other cards to the envelope.

EVALUATION ACTIVITIES FOR IS THERE A RULE?

Sort the cards from the problem area into two groups. If anyone on your team did the activity, put the card in Stack 1. If no one did the activity, put the card in Stack 2.

You will need REVIEW TEAM EVALUATION SHEETS, Problem 1 and Problem 2. These sheets are printed on NCR paper. Each member of the Review Team will need one pair of Problem 1 sheets and one pair of Problem 2 sheets. The white sheet is for you to keep in your RULES RECORD. Give the yellow sheet to your team leader to send to BSCS.

Problem 1

Spread out the cards in Stack 1 on the floor or on a table. Sort the cards from Stack 1 into groups. You might sort them on the basis of what you learned by doing the activity, what you did in the activity, or any other basis for grouping that you can think of. You need to agree as a Team on the best reasons or explanation of your groups of cards. When your Team agrees, each team member will need to complete a REVIEW TEAM EVALUATION SHEET for Problem 1. If you agree with your team, your explanations will be the same as other members of your team. If you disagree, you will have different explanations.

You will need to decide on a title for each group of activities, an explanation or reason why the activities go together, and a list of activities in the group. You might want to write on scratch paper before you write your final groupings on the EVALUATION SHEET. Repeat these three steps for each group of activity cards from Stack 1.

When everyone in your group has finished Problem 1, go on to Problem 2.

Problem 2

Take the cards in Stack 2. Spread them out on a table or on the floor. Do any members of your Team know what any activities on the cards are about? If no one on your Team knows what the activity is about, take one copy of the activity from the module box.

As a group, look over the activities whose titles are in Stack 2. Decide, for each activity, why you didn't choose to do it. Each team member should then fill out a copy of the REVIEW TEAM EVALUATION SHEETS, Problem 2. Record the activity title and write down all the reasons why the activity wasn't chosen. Did you find any activity you would like to have done? You may be able to go back later and do it.

The Review Team leader--maybe you are it--should collect the yellow copies from Problem 1 and Problem 2. The Team leader should also collect the copies from the Individual Evaluation Activities that each team member did for this problem area. Staple or clip these papers together and give them to your teacher.

EVALUATION ACTIVITIES FOR WHAT SHOULD I DO?

Get the Evaluation Cards envelope from the module box for your team. Quickly choose a new Team leader. Take the pink Evaluation Cards for What Should I Do? from the envelope. Be sure you have your RULES RECORD folder, too. Sort the cards into two groups, like you did for the problem area, Is There a Rule? That is, if anyone on your team did the activity, put the card in Stack 1. If no one did the activity, put the card in Stack 2.

Each team member will also need REVIEW TEAM EVALUATION SHEETS, Problem 3. These sheets are printed on NCR paper. Keep the white copy in your RULES RECORD. After you have completed the problem, give the yellow copy to your team leader to send to BSCS.

Problem 3: Can any of the activities in Stack 1 fit into the groups you made in Problem 1 for Is There a Rule? If any cards fit into the old groups, fill out a REVIEW TEAM EVALUATION SHEET, Problem 3, using group names from Problem 1. Write down your reasons and activity titles for each group.

If any activity cards are left over (they don't fit into the groups from Problem 1), make new groups just like you did for Problem 1, and record the information needed--group name, reasons, and activity titles--on the REVIEW TEAM EVALUATION SHEET for Problem 3.

EVALUATION ACTIVITIES FOR HOW DO RULES CHANGE?

Take the Evaluation Cards envelop for your team from the module box. Quickly choose a new team leader. Take the yellow Evaluation Cards for How Do Rules Change? and the green card for "Selur Island" from the envelope. You will need your RULES RECORD folder, too.

Sort the cards into two groups like you have done before, separating the activity cards into Stack 1 and Stack 2. Get one set (Copy 1, white; and Copy 2, yellow) of REVIEW TEAM EVALUATION SHEETS, Problem 4 and REVIEW TEAM EVALUATION SHEETS, Problem 5.

Problem 4: Can you now add activities in Stack 1 to the groups you made in either Problem 1 or Problem 3? If any cards fit into old groups, fill out REVIEW TEAM EVALUATION SHEET, Problem 4, using group names from Problem 1 or 3. Write down your reasons and the activity titles for each group.

Take the cards left over--the cards that don't fit into your old groups--and make new groups. Add these new groups--group names, reasons, and activity titles--on the REVIEW TEAM EVALUATION SHEET, Problem 4.

Problem 5: Take all the Evaluation Cards from the envelope. Mix them up. Divide the cards among team members. Sort all the cards into two stacks. Stack 1 will be the activities that any team member did. Stack 2 will be the activities no one did. Each team member will need a white and a yellow copy of REVIEW TEAM EVALUATION SHEET, Problem 5.

Now, as a Team sort the cards in Stack 1 into three groups: the best activities, the in-between, and the worst activities. To be a "best" activity all but one member of your team must vote for the activity as being in the "best" group. To be a worst activity, all but one member of your team must vote that the activity should be in the "worst" group. All other activities are in the "in-between" group. It doesn't matter how many activities you put in each group. Look at the Problem 5, REVIEW TEAM EVALUATION SHEETS to see what you will do when you finish sorting the cards.

Everyone on the team should now write the titles of the "best" and "worst" activities in the proper places on the Problem 5, REVIEW TEAM EVALUATION SHEET. As a team, discuss your reasons for putting the activities in each group. You might want to use scratch paper to organize your ideas before each team member completes the center column of the Problem 5 Evaluation Sheet.

Finally, if you voted for including each activity in the group, write your personal reason for agreeing with the team's choice. If you voted against including an activity in the group, write your reason for voting against the team's choices.

Turn in your yellow copies of the Evaluation Sheets to your team leader so they can be mailed to BSCS.

GRADING

Grading is an optional activity associated with evaluation. It is optional because you might not need to change evaluation data into a grade. If you want to have a grade in the grading system your school uses, or if a grade in Human Sciences is required by your school, then you might want to work with your teacher on this activity. Or, you and your teacher might be able to invent a better activity than this one to determine your grade.

This activity is to be done after all evaluation activities for the RULES module have been completed. You can do part of the activity at home, and then do the remainder in a private conference between you and your teacher. If you and your teacher agree to do this activity, here is what you will need to do.

Take home your RULES RECORD. Read over everything you now have in your folder. Remember, your RULES RECORD should represent your best work for the RULES module. If your folder doesn't represent all that you have done, the first thing you will need to do is write an explanation of what you have done in the RULES module. Write that information on a piece of notebook paper titled "More Evaluation Information." After you have completed this task you are ready to decide on a grade for your work on the RULES module.

The best way, we think, to decide on your grade would be for you to sit down with one or both of your parents or guardian and go over your RULES RECORD with them. Explain what kind of grade you think you have earned in your study of RULES, and why you believe you have earned that grade. When you and your parents or guardian agree on a grade, record your grade at the bottom of your additional evaluation information paper. Write an explanation as to why you and your parents agreed to that grade. If you like, your parents can help you make the statements of reasons for the grade. If you can't do the above activity with one or both of your parents, or guardian, you might be able to do it with any adult with whom you live. This could be an older brother or sister, an aunt or uncle, or even a neighbor. It should be someone who knows you well and who will not penalize you or expect you to do something that you are not able to do. It doesn't matter with whom you do this activity, but it is important that someone besides yourself helps you make a judgement about the grade that you have earned.

The second part of GRADING will be to give your folder with your additional evaluation information to your teacher so he or she can go over the information, look at your explanation for your grade, and write his or her judgement and reasons for the grade you have earned in RULES. Meet with your teacher to discuss the similarities or differences in your grades. Then decide on your final grade for RULES. During this conference, both you and your teacher will need to agree on the reasons you will use to determine your grade on the next Human Sciences module. You will then know what you need to do for the next module, and your teacher will know what he or she expects you to for the next module.

RULES MY ACTIVITY RECORD IS THERE A RULE?

NAME ______________________ SCHOOL ______________________

TEACHER ______________________ DATE ______________________

Check (✓) the one column (1, 2, 3, or 4) for each activity that tells what you did. In column 5 write your suggestions for improving the activity. Use the back if needed. Use information from your RULES RECORD to complete this form.

Activity	I started and finished it.	I started but didn't finish it.	I didn't want to do it.	I didn't have time to do it.	Comments: Writers can make the activity better by...
1. Plant Rules					
2. Hear It From A Judge					
3. Fish Do It, Birds Do It					
4. Flight Distance					
5. Rules Of The Road					
6. A Swingin' Rule					
7. Silent Rules					
8. Planaria					
9. Rules And Humor					
10. Rules For Roles					
11. Pet Babies					
12. Survival Rules					
13. Who's Chicken?					
14. Animal Action					
15. Rules Nobody Can Change					
16. On Being The Right Size					
17. The Rules In Schools					
18. Rules For Finding Food					

Send this to BSCS with your other evaluation materials.

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RULES MY ACTIVITY RECORD WHAT SHOULD I DO?

NAME ____________________ SCHOOL ____________________

TEACHER ____________________ DATE ____________________

Check (✓) the one column (1, 2, 3, or 4) for each activity that tells what you did. In column 5 write your suggestions for improving the activity. Use the back if necessary. Use information from your RULES RECORD to complete this form.

Activity	I started and finished it.	I started but didn't finish it.	I didn't want to do it.	I didn't have time to do it.	Comments: Writers can make the activity better by...
19. Discovering Rules In Science					
20. Folkways Or Mores?					
21. Protein For People Or Pets?					
22. Loyalty, But To What?					
23. When Is It Right To Break The Rules?					
24. Powderhorn					
25. When Animals And People Live Together					
26. Riding Shotgun					
27. Ben Franklin's Rules					
28. Police Officer's Choice					
29. Broken Cups					
30. The Biggest Predator?					
31. If Rules Are Wrong					
32. Discussing Dilemmas					

Send this to BSCS with your other evaluation materials.

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RULES MY ACTIVITY RECORD HOW DO RULES CHANGE?

NAME ______________________ SCHOOL ______________________

TEACHER ______________________ DATE ______________________

Check (✓) the one column (1, 2, 3, or 4) for each activity that tells what you did. In column 5 write your suggestions for improving the activity. Use the back if needed. Use information from your RULES RECORD to complete this form.

Activity	I started and finished it.	I started but didn't finish it.	I didn't want to do it.	I didn't have time to do it.	Comments: Writers can make the activity better by...
33. Game Rules: Now And Then					
34. Faraway Places And Long-Ago Times					
35. Cooperationball					
36. The Great Gum Case					
37. Family Changing					
38. Rules In A Free School					
39. Build A Utopia					
40. Spinning Seeds					
41. Etiquette					
42. Break A Rule					
43. Responsibility Is The Rule					
44. Rules Of The Game					
45. Selur Island					

Send this to BSCS with your other evaluation materials.

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CHOOSE YOUR PROBLEM WORK SHEET

MODULE TITLE____________________ PROBLEM AREA____________________

Name____________________ School____________________

Teacher____________________ Date____________________

Write the problem number in the space at the left. Copy the problem exactly as it is printed on the paper "Choose Your Problem."

Problem Number	Copy the problem here:
_____	

(Write your answer or make your drawing here)

Copy 1: Keep this copy in your RULES RECORD folder.

REVIEW TEAM EVALUATION SHEET

PROBLEM 1

* PROBLEM AREA______________________________

LEADER________________________ NAME___________________________

OTHER MEMBERS____

SCHOOL____

TEACHER_______________________ DATE___________________________

PROBLEM 1: Group the activities from Stack 1. First, write the group title. Second, write your reason for the grouping. Third, list the titles of the activities in the group. Repeat this for each group.

Group Title	Reasons for Grouping	Activities in Group

Copy 1: Keep this copy in your RULES RECORD folder.

REVIEW TEAM EVALUATION SHEET

PROBLEM 2

PROBLEM AREA____________________________

LEADER______________________ NAME________________________

OTHER MEMBERS____

SCHOOL____

TEACHER______________________ DATE________________________

PROBLEM 2: First, list the title of the activity. Second, list as many reasons as you can to explain why you did not choose the activity. Do this for each activity in Stack 2.

Activity Title	We Did Not Choose This Activity Because

Copy 1: Keep this copy in your RULES RECORD folder.

REVIEW TEAM EVALUATION SHEET

PROBLEM 3

PROBLEM AREA__________________________

LEADER________________________ NAME________________________

OTHER MEMBERS____

SCHOOL____

TEACHER_______________________ DATE________________________

PROBLEM 3: Sort out the activities that fit into the groups you made in Problem 1. Write (repeat) the group titles and give your reasons for grouping. List the activity titles for each group. If there are any activities left in Stack 1, make new groups for them. Write down the group titles, your reasons for the group, and the activities in the group. Use all activities in Stack 1.

Group Title	Reasons for Grouping	Activities in Group

Copy 1: Keep this copy in your RULES RECORD folder.

REVIEW TEAM EVALUATION SHEET

PROBLEM 4

PROBLEM AREA ____________________

LEADER ____________________ NAME ____________________

OTHER MEMBERS ____________________

SCHOOL ____________________

TEACHER ____________________ DATE ____________________

PROBLEM 4: Sort out the activities that fit into the groups you made in Problem 1 and Problem 3. Write (repeat) the group titles and give your reasons for grouping. List the activity titles for each group. If there are any activities left in Stack 1, make new groups for them. Write down the group titles, your reasons for the group, and the activities in the group. Use all activities in Stack 1.

Group Title	Reasons for Grouping	Activities in Group

Copy 1: Keep this copy in your RULES RECORD folder.

REVIEW TEAM EVALUATION SHEET

PROBLEM 5

PROBLEM AREA ______________________________

LEADER ______________________ NAME ______________________

OTHER MEMBERS ____

SCHOOL ____

TEACHER ______________________ DATE ______________________

PROBLEM 5: Write the titles of the "best" and "worst" activities in the correct sections in the left-hand column. Write the reasons that your Team agreed to for placing those activities in the group. In the column on the right, put your personal reasons for agreeing or disagreeing with the Team's choices.

Titles of the Best Activities	Reasons Why the Team Thought These Activities Were Best	Reasons Why I Agree or Disagree with the Team

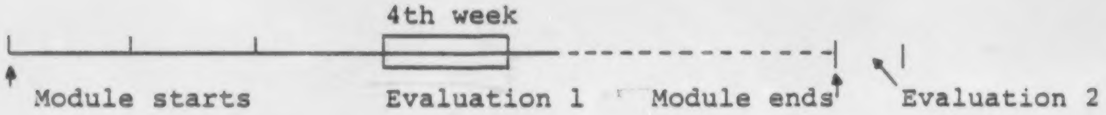
Titles of the Worst Activities	Reasons Why the Team Thought These Activities Were Worst	Reasons Why I Agree or Disagree with the Team

Copy 1: Keep this copy in your RULES RECORD folder.

FACILITATING SELF-EVALUATION

The evaluation activities for WHERE DO I FIT? are scheduled to be administered twice during the module. The first evaluation activities should be conducted during the fourth week of the module. This evaluation period does not coincide with completion of any particular problem area. It does not matter how many activities the students have completed.

The second evaluation period should follow the completion of the module.



Please note that there is no necessary order in using the problem areas in this module. The evaluation activities have been designed to accommodate unrestricted use of activities within the module, regardless of problem area classification.

Students may look at the evaluation activities at any time, but should do the activities only at the scheduled times. Help them do their best work. The goal is for students to make their best "public" presentation.

The WHERE DO I FIT? RECORD should be made available to students on the first or second class period of the module. We could not provide the fold for a pocket this time. Students should be encouraged to make their own adaptation.

The Record has space to maintain a log of activities done, and dates started and completed. This log will serve as a data source and evidence of what each student has done. Encourage systematic maintenance of the Record by providing time for its thoughtful use. Regular record keeping is most important.

The RECORD has space to maintain a log of activities done, and dates started and completed. This log will serve as a data source and evidence of what each student has done. Encourage systematic maintenance of the RECORD by providing time for its thoughtful use. Regular record keeping is most important.

If students wish to keep additional records, such as more detailed diaries, journals, pictorial records, charts, tape recordings, etc., encourage such creativity.

Students should keep samples of their best work and copies of all of their evaluation activities in the Record. It is designed to show others, the student's various publics, what has been done in Human Sciences. It will be useful to the student, to you, to administrators, and to parents when an evaluation of a student's work is discussed, and, if necessary, will serve as a source of information for determining a grade.

EVALUATION MATERIALS INCLUDED WITH THE MODULE

WHERE DO I FIT RECORD: (One per student) A folder for recording activities done, and for collecting samples of best work and evaluation activities

"How I'm Doing": (One per student) A booklet of instructions for self-evaluation activities

My Activity Record: (From 1, 2, and 3 for each student) These are Optical Scan® forms. They will be machine-processed. Make sure students use a soft (#2 or softer) lead pencil for marking.

Choose Your Problem Work Sheets: (2 pads) These are printed on two-page NCR (carbon) forms--white, with a second sheet. Encourage students to write on the top white sheet with enough pressure to make a clear copy on the second yellow sheet.

EVALUATION ACTIVITIES

This module will utilize only individual self-evaluation activities, completed at two scheduled times.

Evaluation Period 1 is to be scheduled during the fourth week of the module. Only the Choose Your Problem activity

My Activity Record: (Form 1, 2, and 3 for each student) will be used at this time. One class period will probably be adequate time for students to complete their work. The booklet "How I'm Doing" provides student instructions. A copy of the booklet follows this section in your Teachers Guide.

Choose Your Problem asks students to select two problems to solve. These problems provide students with an opportunity to show what they have accomplished four weeks into the module. This activity is designed to aid students in reflecting upon the activities they have done. Encourage them to think carefully, perhaps working out their ideas on scratch paper, before preparing their final response on the Choose Your Problem Work Sheets.

Choose Your Problem Work Sheets, printed on NCR paper, are in pads in the module box. Each of the two problems selected should be answered on a set (Copy 1, white; Copy 2, yellow) of NCR forms. As students work on their problems, it will be most helpful for you to circulate among them, checking to see that the heading material is complete. Also, as you look at student responses, you might ask what a sketch means if it doesn't make sense to you. Suggest that they label it, or write a title for it, if a variety of interpretations would be possible.

Have students collect the yellow Copy 2 forms. Check them to see that everyone turned in a copy. Put them in one of the envelopes provided and mail to HSP.

Evaluation Period 2. Two individual evaluation activities should be done after work with the module has been finished: complete My Activity Record and two Choose Your Problem problems.

My Activity Record consists of three (Forms 1, 2, and 3) Optical Scan® forms per student. These forms are not collated and should not be stapled or fastened together. It will be helpful to have each student keep his or her three sheets together for return to HSP. The WHERE DO I FIT? RECORD will serve as a data source for filling out these forms.

As the sheets are machine-processed, folding and any extra pencil marks are to be avoided. Students will need to use a soft lead pencil (# 2 or softer) to mark their response. The five boxes at the top of each page are for our use in coding. Encourage students to think about making their marks to provide the most accurate information they can.

When this activity is completed, collect each student's set of three papers (Forms 1, 2, and 3), and put them into one of the return envelopes.

Choose Your Problem again asks students to select two problems from the Choose Your Problem list in "How I'm Doing." You will note that this is the same list from which problems were selected at Evaluation Period 1. Students are asked to select two different problems--they should not repeat either previously selected problem. They might need to be reminded to check their Choose Your Problem Work Sheets from the first evaluation period so as not to repeat a problem. Urge students to select the questions that will enable them to show the best of what they have learned.

Circulate around the room. Remind students that their response to the problem needs to be understandable to someone who will have only what they have put on paper. Their responsibility is to communicate their best response to the problem they have selected.

Collect the yellow Copy 2 forms, have students check them to be sure that there are two per student, and return them to HSP in the addressed envelope.

HOW I'M DOING

WHERE DO I FIT? has two different kinds of evaluation activities. You will do both kinds by yourself.

The module box has WHERE DO I FIT? RECORD folders for you to keep. The RECORD could not be made with a flap for a pocket. You will have to use your imagination to figure out a way to keep from losing papers. Learning to keep careful records in your RECORD is an important part of the Human Sciences Program.

SELF-EVALUATION

Keep a daily log of the activities you do by recording the date you started and date you finished each activity in your WHERE DO I FIT? RECORD. You will need this information for the evaluation at the end of the module. Keep sample copies of your best work in your RECORD. You might want to take pictures of things you made that won't fit in your RECORD.

During the fourth week of the module, you, your classmates, and your teacher will need to plan a class period for evaluation activities. At that time, you will do the activities described in the section titled "Evaluation Period 1." Another class period or two will be needed when you complete your study of the module. At that time, follow the instructions titled "Evaluation Period 2."

Evaluation Period 1. You will do only one kind of activity at this time--Choose Your Problem. Choose any two problems from the Choose Your Problem list beginning on page 4 of this booklet. Take two sets of Choose Your Problem Work Sheets from the module box. Choose Your Problem Work Sheets are printed on NCR paper. This is a kind of carbon paper. You will need a white sheet, Copy 1, and a yellow sheet, Copy 2, for each problem. Make sure the white and yellow sheets are lined up before you write or draw on them. When you write on the white copy, check to see that you're writing hard enough to make a good copy on the yellow sheet.

Keep the completed white copies in your WHERE DO I FIT? RECORD. The yellow copy will be collected and sent to the Human Sciences Project.

Evaluation Period 2. During this evaluation period, you will do two different kinds of activities. You will need your WHERE DO I FIT? RECORD for the first one.

Get one copy each of My Activity Record, Form 1; My Activity Record, Form 2; and My Activity Record, Form 3. The information you report on these records is very important for the Human Sciences 'staff. Please follow the directions carefully.

The My Activity Record forms are processed by machine. The five boxes at the top will be used later by the Human Sciences staff for code numbers to identify each sheet. You will need to use a soft lead pencil (No. 2 or softer) to mark your response for each activity. Mark the most accurate response for each activity. Please be careful not to put any extra marks anywhere on the paper.

When you complete both sides of each form, turn them in so that they won't get folded or wrinkled. Thanks very much for doing this; we know it is extra work for you.

The second--and last--evaluation activity is Choose Your Problem. Again you will need two sets of Choose Your Problem Work Sheets from the module box. Select two Choose Your Problem problems from the list beginning on page 4. Do not choose the same problems you selected for Evaluation Period 1. Your choice of problems should provide new material to show your parents, your teacher, and anyone else, what you accomplished during WHERE DO I FIT?

What you put on your Choose Your Problem Work Sheet should represent the best work you can do. You might want to plan your answers to the problems you choose on scratch paper.

Some papers from your class, maybe yours, will be displayed at conventions for teachers. Others might be included in publications to show what students do in Human Sciences classes. Thanks for doing your very best.

Keep Copy 1 of each Choose Your Problem Work Sheet in your WHERE DO I FIT? RECORD. Turn in your two Copy 2 forms for mailing to the Human Sciences Project.

CHOOSE YOUR PROBLEM

Evaluation Period 1. Select any two of the following problems. Solve each problem on a separate pair of Choose Your Problem Work Sheets. Be sure to write or draw with enough pressure on the white sheet to make a good copy on the yellow sheet. Be sure to record the problem letter, and just the underlined part of the problem at the top of the work sheet.

Evaluation Period 2. Select two new problems--problems you didn't choose at Evaluation Period 1. Use a separate Choose Your Problem Work Sheet for each of these two problems. Be sure to record the problem letter and just the underlined part of the problem at the top of the work sheet.

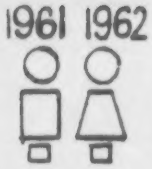
A

Write the title of the most important activity you have done so far in WHERE DO I FIT? Why was it important to you? What new ideas did you learn from it?

B

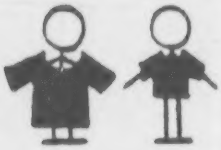
Think about this statement: AMERICANS ARE VERY MUCH ALIKE. THEY HAVE THE SAME CUSTOMS AND BELIEFS. Do you agree or disagree with this statement? Write your reasons.

C



Use your Class Data Bank to answer the following questions: How many girls in your class were born in 1962? How many boys in your class were born in 1961?

D



Describe a situation where you really felt like "I fit!" and a situation where you felt like "I don't fit!" What made the difference?

E

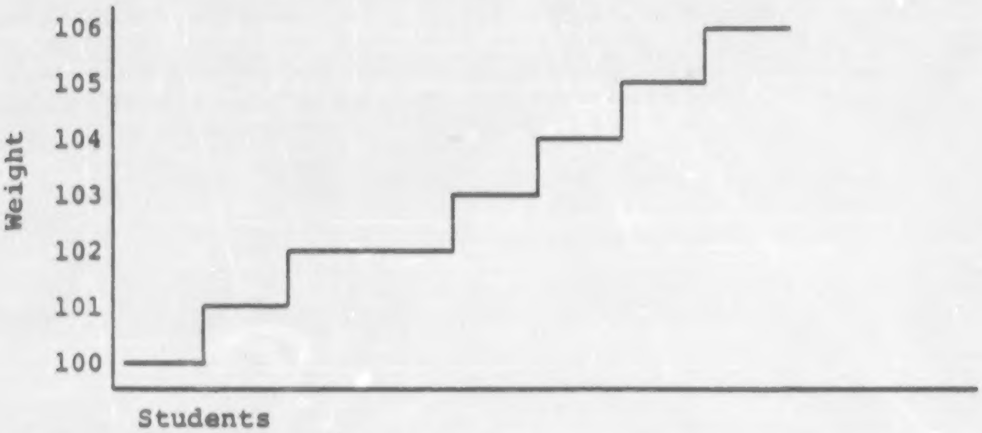
How was your RULES RECORD used to give you a grade for Human Sciences? How do you feel about the way it was used?

F

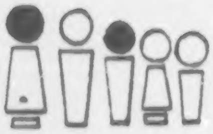
Some animals live in groups or bands or herds. Name an animal that lives in a group with others of its own kind. Describe the behavior of a leader and a follower in the group that kind of animal belongs to.

G

Use your Class Data Bank to answer the following question: How many students in your class did the activity "Windy"?



H



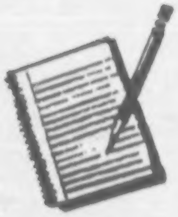
Steve weighed several students in his class. He recorded the student with the lightest weight on the left side of a graph. A copy of Steve's graph is above. Use Steve's graph to answer the following questions:

A. How many student weights did Steve record?
B. What is the "range" of recorded weights?
C. What is the average weight of the students recorded?

I

List the six most important (from your point of view) ways in which human beings change as they grow up.

J



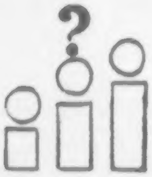
Write about an interview you conducted with an adult for this module. Include any surprises or special memories you have of the interview. Explain how the interview could have been of interest or value to the adult.

K

What did you learn about your own interests in WHERE DO I FIT? How did you learn about them? What do you think about what you learned?

L

Make a sketch or drawing of something you made as a part of WHERE DO I FIT? Write a description of the special features that can't be shown in your drawing.



M

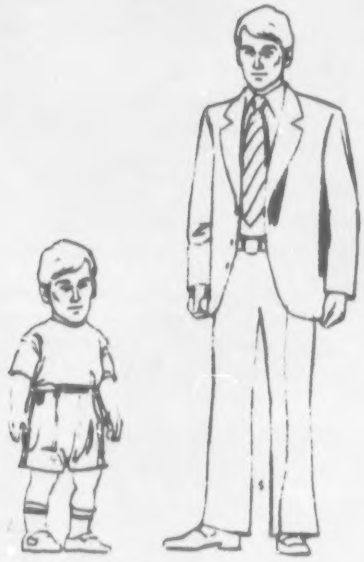
Think about this statement: "There is no good reason for adolescence. All human beings begin life as babies, grow up through childhood, and then are adults." Write your reasons for agreeing or disagreeing with the statement.

N

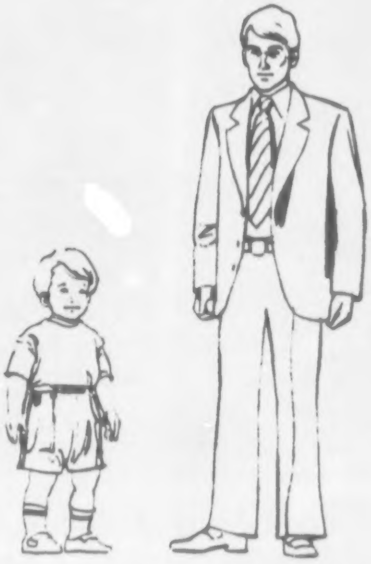
Think of an animal part or structure and a problem the animal can solve with the structure. Make a drawing or write the name of the structure. What problem can the animal solve with the structure? What structure do you use to solve the same problem?

O

Write a question or problem that you think will show something important that you learned in WHERE DO I FIT? that is not in this problem list. Why is it a better question or problem? What is your answer for it?



A



B

P

Look at the drawings in Set A and Set B. They were both drawn to show how human beings grow.

A. How are the drawings in Set A like those in Set B? How are they different? (Which set of drawings best shows the way people really grow up? Why?)

Q

Which set of drawings best shows the way you feel inside as a person about how people grow up? Explain your reasons.

R

Which set of drawings best shows the way you think about people growing up? Why?

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS   ERASE STRAY MARKS

Name ____________________
Teacher ____________________
Date ____________________

WHERE DO I FIT? FORM 1

Directions: Activity titles are listed by problem areas.

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

WHERE DO I FIT AS A PERSON?

A Rule of Thumb

A Day in the Life Of...

When Do I Fit?

Windy

Doing Time

Challenge

Are You Healthy?

Know Your Teacher

NOW COMPLETE THE OTHER SIDE →

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OE 1079

Ask Beth	1 2 3 4 5
Knowing Others	1 2 3 4 5
For Righties Only	1 2 3 4 5
Right or Wrong: Who Decides	1 2 3 4 5
Heads and Feet	1 2 3 4 5
Whom Do You Go To?	1 2 3 4 5
Fingerprinting	1 2 3 4 5
People Match	1 2 3 4 5
Class Data Bank	1 2 3 4 5
Controlling My Body	1 2 3 4 5
Looking Inward	1 2 3 4 5
Tall, Taller, Tallest	1 2 3 4 5

OPTICAL SCANNING CORPORATION

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS ERASE STRAY MARKS

Name ____________________

Teacher ____________________

Date ____________________

WHERE DO I FIT? FORM 2

Directions: Activity titles are listed by problem areas.

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

Reasons Why

Once I Was a Teenager, Too

WHERE DO I FIT AS AN ORGANISM?

You and Your Century

Baboons

The Wolf Pack

The All American Kid

How Much Do I Use?

Follow the Leader

NOW COMPLETE THE OTHER SIDE →

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UF 1079

OPTICAL SCANNING CORPORATION

Literally Buried	1 2 3 4 5
How Do I Do It?	1 2 3 4 5
Them Bones, Them Bones	1 2 3 4 5
A Tooth for a Tooth	1 2 3 4 5
Two Views	1 2 3 4 5
WHERE DO I FIT IN THE FUTURE? The Future is Now	1 2 3 4 5
Teach-a-Person	1 2 3 4 5
Lifespace	1 2 3 4 5
Sizes and Shapes	1 2 3 4 5
Getting Together	1 2 3 4 5
Roughing It	1 2 3 4 5
Help-a-Person	1 2 3 4 5

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS ERASE STRAY MARKS

Name ____________________

Teacher ____________________

Date ____________________

WHERE DO I FIT? FORM 3

Directions: Activity (or book) titles are listed.

Mark 1 if you started the activity (or book) and finished it.
Mark 2 if you started the activity (or book) and didn't finish it.
Mark 3 if you didn't want to do the activity (or read the book).
Mark 4 if you didn't have time to do the activity (or read the book).
Mark 5 if you have not looked at the activity (or book).

Doctor, Lawyer, Indian Chief

Past, Present, and Future

Beyond 2000 A.D.

Housing for the Future

INTEGRATIVE ACTIVITY

People

WHERE DO I FIT LIBRARY

Sounder

These Were the Sioux

Young Fu of the Upper Yangtze

NOW COMPLETE THE OTHER SIDE →

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[illegible], OPTICAL SCANNING CORPORATION, [illegible]

Are You There God? It's Me, Margaret	1 2 3 4 5
Edgar Allan	1 2 3 4 5
I Was a 98-Pound Duckling	1 2 3 4 5
Then Again, Maybe I Won't	1 2 3 4 5
Thirty-One Brothers and Sisters	1 2 3 4 5
Today I Am a Ham	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	180 1 2 3 4 5

UF 1080 OPTICAL SCANNING CORPORATION

CHOOSE YOUR PROBLEM WORK SHEET

WHERE DO I FIT? EVALUATION PERIOD 1 OR 2 ?

NAME____________________ SCHOOL____________________

TEACHER____________________ DATE____________________

Write the problem letter in the space at the left. Copy the underlined part of the problem exactly as it is printed on the paper "Choose Your Problem."

Problem Letter ______ Copy the underlined part of the problem below:

(Write your answer or make your drawing here.)

Copy 1: Keep this copy in your WHERE DO I FIT? RECORD folder.

WHERE DO I FIT?

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Code on each Choose Your Problem NCR paper as follows. Put each code in a vertical column on the right hand side of the paper, one under the other, first code at top. For every coding category use 7 if something is written, drawn, or marked, but can't be coded in the specified categories.

Problem A

Type of Response - A01

1 = written response only
2 = drawing only
3 = drawing plus words

Completeness - A02

1 = activity title written
2 = activity title not written, but can be inferred correctly
3 = activity title not written, activity indeterminant

Activity Title - A03

01 = 77 (activities 01 to 45, in order as on My Activity Record Forms, 77=no title given)

Importance, Attitudinal - A04

1 = fun, interesting, good, I liked it
2 = easy to do
3 = had enough to do, wasn't too long, or too short
4 = did something new, never done before, like becoming a professor
6 = no attitudinal comment
7 = attitude which does not fit above (activity was hard) for example

Importance, Cognitive - A05

1 = learned a lot (general, no specific thing)
2 = learned about X (one specific item)
3 = learned about X and Y (two or more specific items)
4 = learned about X and Z (one specific and one or more general items)
5 = learned about X and Y, and ZZ (two or more specific and one or more general items)
6 = no cognitive comment
7 = learned nothing

Importance, Logistic - A06

1 = got to leave class
2 = worked with (film, other media)
3 = made something, did something
4 = interviewed others
5 = worked with people
6 = no logistic statement

New Idea - A07

1 = learned about friend(s), teacher(s), other people
2 = learned about occupations (police, judge, etc.)
3 = learned (specific fact stated, e.g. FBI can identify right or wrong)
4 = learned about myself
5 = any combination of 1, 2, 3, 4,
6 = described activity
7 = No new ideas or (idea which does not fit above)

When only drawings are made, leave column blank after Column 17 (activity title).

If only title of activity is written, code only to Column 17 (activity title).

When student has written about two activities for his answer to Problem A, record the information for the first activity only.

When the student answers two of the same problems (such as two Problem A's), use the problem that they did in Evaluation Period I.

Problem B

Type of Response - B01

1 = written only
2 = drawing only
3 = drawing and writing

Agree/Disagree - B02

1 - agreement stated or implied
2 = disagreement stated or implied
3 = both agreement and disagreement expressed or implied
4 = agreement or disagreement indeterminant

Completeness B03

1 = reiteration of statement or assertion that people differ (opposite of statement), only
2 = both belief(s) and custom(s); may include (5)
4 = customs, no beliefs, but may include (5)
5 = from different countries, regions, backgrounds, regional groups
6 =
7 = not codeable

Customs = usage or practice common to a group of people

Beliefs = a conviction of the truth of some statement or reality of a fact

When a student answers two of the same problems (such as two A's,) use the problem that was done in Evaluation Period 1.

CHOOSE YOUR PROBLEM

PROBLEM D

Description of "I fit" - D01

1 = peer situation/friends/report cards
2 = social class
3 = sports (coordination, physical tests)
4 = cross-age groups
5 = appearance (clothes, hair, fat-thin)
6 = not codeable (church, sex difference, race difference, school family)
7 = none given

Description of "I don't fit" - D02

1 = peer situation, not friends
2 = social class
3 = sports (coordination, physical tests)
4 = cross-age groups
5 = appearance (clothes, hair, fat-thin)
6 = not codeable (church, sex difference, race difference, school, family)
7 = none given

PROBLEM D (Cont'd)

The difference explanation - D03

1 = I was wanted, recognized notice, belong
or
1 = I feel uncomfortable/teased didn't know anyone, ignored, feel like a number
2 = communications (didn't or do understand--them, me, can't talk)
3 = necessity to role play
4 = not competent (couldn't play, needed to learn)
5 = environment (city vs. country)
6 = not codeable
7 - none given

PROBLEM E

Evidence of student/teacher interaction - E01

1 = explicit statement of student/teacher interaction
2 = explicit statement of independent teacher judgment
3 = implicit statement of student/teacher interaction
4 = implicit statement of independent teacher judgment
5 = state or imply student self-evaluation
6 = no evidence/have not answered

Expression of attitude - E02

1 = explicit positive
2 = explicit negative
3 = explicit positive and negative
4 = implicit positive
5 = implicit negative
6 = implicit positive and negative
7 = no expression of like/dislike

Basis for grade - E03
1 = number of activities/how long it took
2 = student explains activities
3 = accuracy/completeness/neatness/follow directions
4 = student estimate of grade
5 = (1, 2, 4,) or any two of them
6 = (1, 3)
7 = no basis expressed

PROBLEM F

Animal Name F01

1 = social animals (band, herd, flock) (sheep, baboons, giraffes, elephants, wolves, mustangs)
2 = family group animals (pride,
3 = solitary animals (cats,
5 = group names (birds
6 = not codeable
7 = no discussion

Leader Behavior - F02

1 = correct leader behavior description
2 = anthropomorphic description
3 = incorrect description
4 = correct description for incorrect animal
5 = reiteration
6 = not codeable
7 = no discussion

Follower Behavior - F03
1 = correct follower behavior
2 = anthropomorphic description
3 = incorrect description
4 = correct description for incorrect animal
5 = reiteration
6 = not codeable
7 = no discussion

(anthropomorphic = ascribing human characteristics to non-human things)

PROBLEM H

A. How many student weights did Steve record? - H01
1 = for answer "8"
2 = for answer "7"
3 = for any other number
7 = not codeable

B. What is the "range" of recorded weights? - H02
1 = for "100-106"
2 = for any other number
7 = not codeable

C. What is the average weight of the students recorded? - H03
Code 1 for answer "102.7" or "103" where answer A is "7 or 8"
Code 2 for any wrong number
Code 6 - response omitted
Code 7 - not codeable

PROBLEM K

1. How did you learn about them? = K01
   1 = if only a single activity title was included
   2 = if more thjan one activity title was included
   3 = if general activities, such as measuring, interviewing, etc., were included
   4 = if the module was mentioned in general
   5 = if no source of learning was mentioned
   7 = ndot codeable

2. What did you learn about your own interests in WHERE DO I FIT? - K02
   1 = learned about myself/likes, dislikes
   2 = learned how to make (do) something
   3 = learned that different people have different talents
   4 = learned that people need people
   6 = no learnings mentioned
   7 = not codeable

PROBLEM L

Activity Title Number - L02	Activity Title
44	Housing for the Future
18	Controlling My Body
02	A Day in the Life of...
32	A Tooth for a Tooth
30	How Do I Do It?
04	Windy
15	Fingerprinting
13	Heads and Feet
17	Class Data Bank
25	The Wolf Pack
07	Are You Healthy?
01	A Rule of Thumb
43	Beyond 2000 A.D.
06	Challenge
05	Doing Time
36	Lifespan
42	Past, Present, and Future
16	People Match
31	Them Bones, Them Bones
33	Two Views
46	Where Do I Fit Library?
23	You and Your Century
77	Uncodeable

PROBLEM M

1. Agree or disagree - M01
   1 = agree, explicit
   2 = agree, implicit
   3 = disagree, explicit
   4 = disagree, implicit
   7 = not codeable

2. Reason - M02
   1 = reiteration/that is the way it is
   2 = adolescence is a stage, no elaboration
   3 = you learn/you change/you find answers
   4 = they should have to, for most people it's bad
   6 = some people don't grow up mentally or socially
   7 = not codeable

PROBLEM N

N01
1 = 1, 2, and 3 correct with correct relations
2 = 1 and 2 correct, 3 incorrect or missing
3 = either 1 or 2 correct, 1 or 2 wrong or missing, 3 incorrect, missing or indeterminent
4 = multiple responses on at least one question
7 = not codeable

PROBLEM O

O01
1 = Yes/No questions without answers
2 = Yes/No question with non-discriminating answer
3 = "What?" question, without answer
4 = "Where?" question with non-discriminating answer

PROBLEM P

QUESION BEING ANSWERED

Which set of drawings best shows the way people really grow up? - P01

Column
57

31 = Set A
02 = Set A
03 = Both A and B
04 = Not stated
07 = Not codeable

PROBLEM Q

Feelings of people growing up - Q01
1 = Set B
2 = Set A
3 = Both A and B
4 = Not stated
5 = Not codeable

Reasons for feelings - Q02
1 = Physical features only
2 = Abnormalities
3 = Differences other than physical
4 = Not stated
5 = Reiteration--direct explanation of the illustration
7 = Not codeable

PROBLEM R

Which set of drawings best shows the way you think about people growing up? - R01
1 = Set B
2 = Set A
3 = Both A and B
4 = Not stated
7 = Not codeable

Reasons for thoughts - R02
1 = Physical features only
2 = Abnormalities
3 = Differences other than physical
4 = Not stated
5 = Reiteration--direct explanation of the illustration
7 = Not codeable

WHERE DO I FIT?

Choose Your Problem Scoring Keys

Problem	Coded Values	Score	Problem	Coded Values	Score	Problem	Coded Values	Score
A01	1	1	B01	1	1	D03	1	1
	2	0		2	0		2	1
	3	2		3	2		3	1
A02	1	2	B02	1	1		4	1
	2	1		2	1		5	1
	3	0		3	1		6	0
A03	(not scorable)			4	0		7	0
A04	1	1	B03	1	1	E01	1	1
	2	1		2	3		2	1
	3	1		3	2		3	1
	4	1		4	2		4	1
	6	0		5	2		5	1
	7	1		6	0		6	0
A05	1	1		7	0	E02	1	1
	2	2	D01	1	1		2	1
	3	2		2	1		3	1
	4	3		3	1		4	1
	5	4		4	1		5	1
	6	0		5	1		6	1
	7	0		6	1		7	0
A06	1	1		7	0	E03	1	1
	2	2	D02	1	1		2	1
	3	2		2	1		3	1
	4	2		3	1		4	1
	5	2		4	1		5	1
	6	0		5	1		6	1
A07	1	1		6	1		7	0
	2	1		7	0	F01	1	2
	3	1					2	1
	4	1					3	0
	5	1					5	1
	6	1					6	0
	7	0					7	0

Choose Your Problem Scoring Keys (Cont'd)

Problem	Coded Values	Score	Problem	Coded Values	Score	Problem	Coded Values	Score
F02	1	2	K02	1	3	Q01	1	1
	2	1		2	3		2	1
	3	0		3	3		3	1
	4	1		4	3		4	0
	5	1		6	0		7	0
	6	0		7	0	Q02	1	2
	7	0	L01	(not scorable)			2	2
F03	1	2	M01	1	1		3	2
	2	1		2	1		4	0
	3	0		3	1		5	1
	4	1		4	1		7	0
	5	1		7	0	R01	1	1
	6	0	M02	1	1		2	1
	7	0		2	3		3	1
H01	1	2		3	5		4	0
	2	1		4	2		7	0
	3	0		6	1	R02	1	2
	7	0		7	0		2	2
H02	1	1	N01	1	3		3	2
	2	0		2	2		4	0
	7	0		3	1		5	1
H03	1	3		4	1		7	0
	2	0		7	0			
	6	0	O01	1	1			
	7	0		2	2			
K01	1	2		3	2			
	2	3		4	3			
	3	3	P01	1	3			
	4	1		2	0			
	5	0		3	0			
	7	0		4	0			
				7	0			

FACILITATING SELF-EVALUATION

An evaluation period will need to be scheduled at the completion of each of the three problem areas of PERCEPTION. Two kinds of activities are provided for each student during each evaluation period: My Activity Record and Choose Your Problem.

Students may look at the evaluation activities at any time during work on the module, but should complete their Choose Your Problem Work Sheets only during the scheduled evaluation periods.

A PERCEPTION PACKET is provided for each student and should be made available early in the module so that students can record starting and completion dates for activities, and write any comments they wish to about the activities they have done. This log of activities will serve as a data source and evidence of what each student has done. Providing time for record keeping and encouraging systematic maintenance of records is an important part of your facilitating role.

Students are asked to keep samples of their best work and copies of their evaluation activities in their PERCEPTION PACKETS. By this time in the school year the RULES RECORD and WHERE DO I FIT RECORD will have been utilized by some of the students' publics: you, their parents, administrators, and others. We anticipate that such experience will help students realize the value of producing their best work and keeping accurate records in their PERCEPTION PACKET.

EVALUATION MATERIALS INCLUDED WITH THE MODULE

PERCEPTION PACKET:	(One per student) A folder for recording activities done, and for retaining samples of the student's best work and evaluation activities.
My Best Work:	(One per student) A booklet of instructions for self-evaluation activities for students.

My Activity Record:	(One for each problem area for each student) These are machine-processed Optical Scan® forms. Make sure students use a soft (no. 2 or softer) lead pencil for marking.
Choose Your Problem Work Sheets:	(3 pads) These are printed on two-page NCR forms--Copy 1, and Copy 2. Encourage students to write on the white sheet with enough pressure to make a clear copy on the yellow sheet.
Evaluating the Quality of My Work:	(1 pad) This is an option for one of the Choose Your Problem problems (Problem V) at the end of the module during the Exchanging Perceptions Evaluation Period.

Explanations of the evaluation activities for each problem area are included in this guide, immediately following the activity descriptions for each problem area.

EVALUATION: PERCEIVING

Students should have their PERCEPTION PACKETS available for reference while completing the evaluation activities. They should also have copies of the evaluation procedures booklet, My Best Work. This booklet describes the evaluation procedures for each of the three problem areas of PERCEPTION.

The evaluation tasks below are to be done when you and your students have completed the Perceiving problem area of the module and before beginning the next problem area, Using Perceptions.

1. My Activity Record, an Optical Scan® form. Be sure students use the form labeled Perceiving. It lists the titles of all activities in the Perceiving problem area.

These sheets are machine processed, therefore folding, crumpling, or any extra pencil marks cause problems in handling these sheets. Students should mark a response for each activity listed. Assist students with any problems they might encounter. Completion of these forms is essential to the evaluation activities.

Collect these forms for mailing to the Human Sciences office before proceeding to the next activity.

2. Choose Your Problem. Students will be familiar with this activity from previous modules; however, there is a slight variation in procedure for use with this module. Four groups of Choose Your Problem are listed in My Best Work. There is a Choose Your Problem group for each problem area and one that can be used for all problem areas. Problems from Group 1: Perceiving, or from Group 4: Any Problem Area, may be selected for this evaluation period.

Students should choose two problems for this evaluation period. They may be both from Group 1 or Group 4, or one from each group. Choose Your Problem Work Sheets are provided in pads in the module box. Once again these forms are printed on NCR paper. Copy 1 is to be retained by the students. Copy 2 should be collected to send back to the Human Sciences office.

Please send materials as soon as possible after the evaluation period(s) is (are) over. You should send:

1. one copy My Activity Record, Perceiving, per student
2. two copies, Copy 2, Choose Your Problem Work Sheet, per student

P.S. The evaluation products of students are really improving. Congratulations on facilitating student learning!

EVALUATION: USING PERCEPTIONS

Students will again need their PERCEPTION PACKETS and My Best Work booklets for reference during the evaluation period.

The evaluation tasks listed below are to be completed when you and your students are ready to move from Using Perceptions to Exchanging Perceptions.

1. My Activity Record, an Optical Scan® form. Copies of the form, printed for Using Perceptions, are available in the module box. Students should mark a response for each activity listed. Collect these forms before students begin Choose Your Problem.

2. Choose Your Problem. Problem Group 2, Using Perceptions, and Problem Group 4, Any Problem Area, list the problems students can select for this activity. They are to choose only one problem from either list during this evaluation period.

Please mail the following items to the Human Sciences office as soon as possible after the completion of the second evaluation period.

1. one copy My Activity Record, Using Perceptions, per student.
2. one copy, Copy 2, Choose Your Problem Work Sheet, per student.

EVALUATION: EXCHANGING PERCEPTIONS

Students will again need their PERCEPTION PACKETS and My Best Work booklets for reference during this evaluation period.

During this evaluation period students will complete the last My Activity Record form and select two problems in Choose Your Problem to complete. The only new aspect of Choose Your Problem is for students choosing Problem V from Choose Your Problem, Group 3. This problem requires the use of a separate form, Evaluating the Quality of My Work. One part of this form needs to be completed by the student during the class period. The student's PERCEPTION PACKET and the partially completed form need to be taken home for a parent, guardian, or an adult friend to complete. We have included only one pad of these forms. If more students want to choose Problem V as one of their two Choose Your Problem tasks, you can make extra copies. Students may also wish to make a duplicate copy to keep in their PERCEPTION PACKET. It was not possible for us to anticipate quantity for this task.

At the completion of the PERCEPTION module you should send the following materials to the Human Sciences office:

1. one copy, My Activity Record, Exchanging Perceptions, per student.
2. two copies, Copy 2, Choose Your Problem Work Sheet, per student.

Students who choose Problem V should have completed the form, Evaluating the Quality of My Work, stapled to the appropriate Copy 2 of one Choose Your Problem Work Sheet.

Thanks for your help.

My Best Work

My Best Work

INTRODUCTION

Self-evaluation is an important part of Human Sciences because you need to stop once in a while to think about what you have been doing and learning. It is important for you to look at and compare your current work with the work you did earlier in the year. By doing the evaluation activities, you can see how the quality of your work has changed. The self-evaluation activities are important to show other people the quality of the work you can do. They are also important to show what students are learning from the Human Sciences Program. The PERCEPTION PACKET, My Activity Record, Choose Your Problem Work Sheets, this booklet, and samples of your best products are the materials you will be working with for evaluation purposes.

The PERCEPTION PACKET could not be made with a flap for a pocket. You will have to invent your own pocket to keep papers from falling out of the PERCEPTION PACKET.

There will be three evaluation periods during the PERCEPTION module. An evaluation period will be scheduled when your class has completed each problem area.

EVALUATION MATERIALS

PERCEPTION PACKET
My Best Work booklet
Choose Your Problem Work Sheets
My Activity Record, PERCEPTION: Perceiving
My Activity Record, PERCEPTION: Using Perceptions
My Activity Record, PERCEPTION: Exchanging Perceptions
Evaluating the Quality of My Work

SELF-EVALUATION

Keep a record in your PERCEPTION PACKET of when you started and stopped working on each activity. You will need this information to complete the My Activity Record form. Keep samples of your best work from each problem area in your PERCEPTION PACKET.

During each evaluation period you will need to do the following things:

1. Complete a My Activity Record form for the problem area you have just finished. Mark the most accurate response for each activity listed. Use a soft lead pencil (No. 2) to make your responses. This form will be processed by machine. Please, do not bend or fold it or make any unnecessary marks on it. These forms will be collected by your teacher and mailed to the Human Sciences office.

2. Complete the Choose Your Problem Work Sheets. These work sheets are printed on NCR paper. Make sure that the white sheet (Copy 1) and the yellow sheet (Copy 2) are lined up before you write or draw on them. When you write on the white sheet, check to see that you are pressing hard enough to make a good copy on the yellow sheet.

PERCEIVING EVALUATION PERIOD

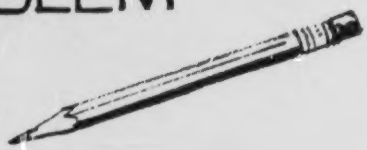
1. Complete the My Activity Record form labeled Perceiving. Turn this in when you finish.

2. Select any two problems from Group 1 or Group 4 of Choose Your Problem. You may choose both problems from either list, or you may choose one problem from each list. Choose the most difficult problems that you can do. The choice of problem and your answer should represent the *best* work you can do. You will need a set (white--Copy 1, yellow--Copy 2) of the Choose Your Problem Work Sheets for each problem you do.

You have shown improvement in the quality of your answers to Choose Your Problem. KEEP UP THE GOOD WORK!

At the end of the evaluation period turn in your two yellow copies, Copy 2, of the Choose Your Problem Work Sheet.

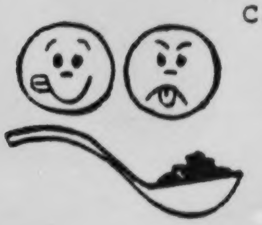
CHOOSE YOUR PROBLEM
GROUP 1
PERCEIVING



These problems are for Perceiving only. You may choose any of these problems or any problems from Choose Your Problem, Group 4. Completely answer two problems.

A. People have blue eyes, brown eyes, gray eyes, or green eyes. Their eyes are different in color. But, everybody in the world has black pupils (centers) in their eyes. Why?

B. Write a rule about how colors can be "stepped up" or "stepped down." Write an explanation of one way the rule could be tested to see if it is really a rule.



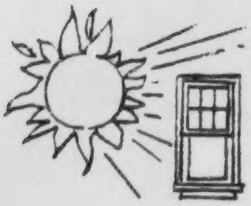
C. Which statement is more correct, 1 or 2?

1. Substance X tastes very bad.
2. Substance X tastes very bad to some people.

Start your explanation with the statement: "1 or 2 is more correct because ____________."
Give reasons and evidence for your choice.

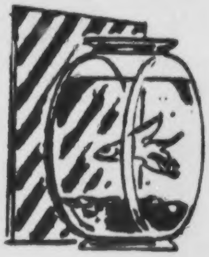
D. Explain how the human eye and brain can make a set of still pictures seem like they are moving.

E. Two people saw the same thing happen, but each one described it differently. How could this happen? Give as many reasons as you can.



F. John and Jerri were talking about "weird" things they had heard. Jerri said she heard someone say they had subtracted a color from some light coming in a window. John said that wasn't weird at all. He would show her how to do it. Make a drawing and label it to show what John did.

G. A male fighting fish was swimming slowly around in an aquarium. A piece of cardboard with a very thin strip of aluminum glued diagonally, like this, was placed against the side of the aquarium. Describe the way you think the fish would behave. Why do you think the fish behaved this way?



H. Can knowledge of how insects behave be used to capture insect pests? Describe ways you think this could be done.

I. Animals have memories. Do you agree or disagree? Be sure to include *evidence* you think supports or goes against the statement.

J. Sally told Sue that plants can tell the difference between one color of light and another. Sue didn't believe her. What evidence could Sally give to support her statement?

K. A worker in a toy factory thought he saw a part of a machine bending when it was moving at high speed. He could not tell if this was true when the machine was stopped. How could he find out if the part was really bending or not?

L. Draw an optical illusion. Describe as completely as possible how an illusion "works."

USING PERCEPTIONS EVALUATION PERIOD

1. Complete the My Activity Record form labeled PERCEPTION: Using Perceptions. Turn this paper in when you finish it.

2. Choose any one problem from Choose Your Problem, Group 2 or Group 4. You only need to answer one problem for this problem area. Get one set of Choose Your Problem Work Sheets for your answer. At the end of the evaluation period, turn in your one yellow copy, Copy 2, of the Choose Your Problem Work Sheet.

CHOOSE YOUR PROBLEM

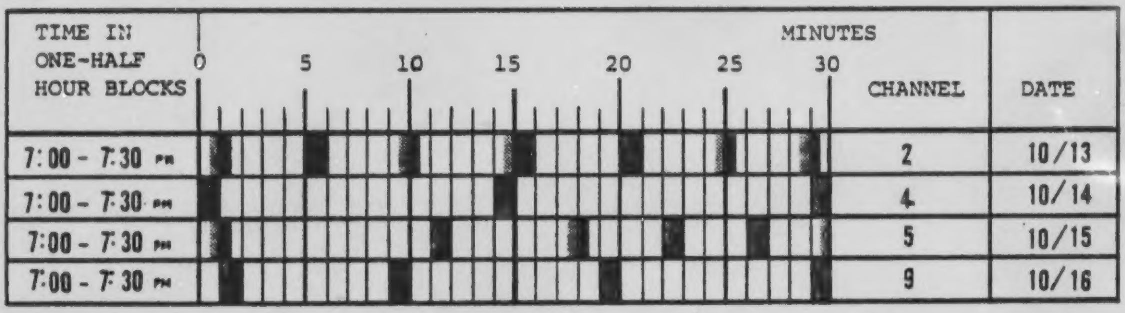
GROUP 2

USING PERCEPTIONS

These problems are for Using Perceptions only. You may choose any one of these problems or one problem from Choose Your Problem, Group 4. Completely answer one problem.

M. What facts about human perception does a magician use to make magic tricks successful?

N. Bill recorded the amount of time used for commercials in half-hour TV programs. His data sheet is shown below. The black areas show the time of each commercial.


MINUTES
0
5
10
15
20
25
30

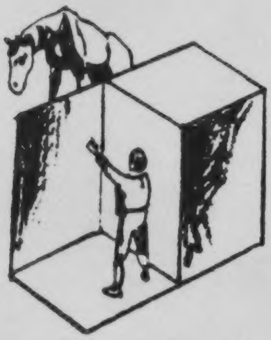
TIME IN ONE-HALF HOUR BLOCKS	CHANNEL	DATE
7:00 - 7:30 PM	2	10/13
7:00 - 7:30 PM	4	10/14
7:00 - 7:30 PM	5	10/15
7:00 - 7:30 PM	9	10/16

If you choose this problem, answer all three questions below. Label each answer, for example, Total time = ______________.

What was the total time of commercials that Bill recorded?

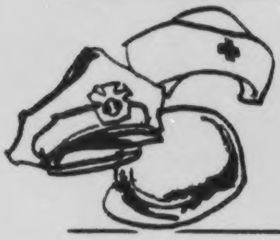
What was the average number of minutes of commercials for the programs Bill observed?

Why did Bill gather his data the way he did?



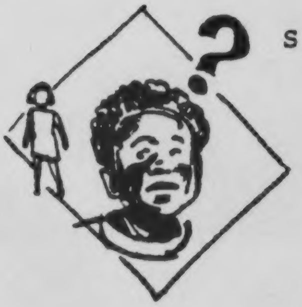
O. A wise man once said, "Beauty is in the eye of the beholder." Do you really see what you *want* to see? Give *evidence* from your activities in PERCEPTION that agrees with the statement. Or, give *evidence* that goes against the statement.

P. Kim said, "I see you have been studying about perception. What does perception mean?" What would be the best answer you could give to her question? You may write, draw, or diagram your answer.



Q. What does "sex-role image" mean? How do you feel about "sex-role images"?

R. Make a drawing to show how to have a door chime ring by pushing a button at either the back door or front door of a house.



S. Tom said, "I heard Karen say, 'Get lost.' I wasn't looking at her so I don't know what she meant." Make drawings or write an explanation to show that seeing Karen was necessary to know what she meant.

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EXCHANGING PERCEPTIONS EVALUATION PERIOD

1. Complete the My Activity Record form labeled PERCEPTION: Exchanging Perceptions. Be sure to make a response for each activity. Turn this paper in as soon as you have completed it.

2. Choose any two problems from Choose Your Problem, Group 3 or Group 4. You will need two sets of Choose Your Problem Work Sheets from the module box. If you choose Problem V from Choose Your Problem, Group 3, you will need to get one copy of Evaluating the Quality of My Work from the module box. Read this completely before you begin work on it.

   At the end of the evaluation period turn in your two yellow copies, Copy 2, of the Choose Your Problem Work Sheet. If you chose Problem V, be sure to staple Evaluating the Quality of My Work to the appropriate sheet.

CHOOSE YOUR PROBLEM
GROUP 3
EXCHANGING PERCEPTIONS

These problems are for Exchanging Perceptions only. You may choose any two of these problems or any two from Choose Your Problem, Group 4. Completely answer two problems.

T. Describe one of the samples of work that you saved in your PERCEPTION PACKET. Why did you choose to save it?

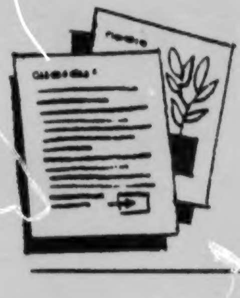
RULES RECORD
PACKET

U. Get out your RULES RECORD. Look at the answers for your Choose Your Problem Work Sheets. Compare them with your answers to the Choose Your Problems you have completed during PERCEPTION. Explain how your answers have improved.

V. Get a copy of the Evaluating the Quality of My Work Work Sheet from the module box. You can complete your part in class. Take home the sheet and have an adult complete his or her part.

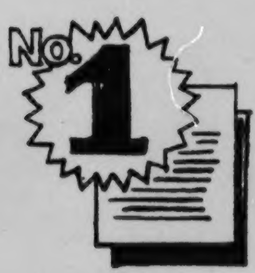
CHOOSE YOUR PROBLEM
GROUP 4
ANY PROBLEM AREA

You may choose these problems instead of those in Groups 1, 2, or 3.



W. Make a drawing or write a story about an activity you did. Explain what you learned from the activity.

X. Look over the activities you finished in this problem area. Then look at those you didn't do. Did you choose the "best" activities for you as a person (for your interests and goals)? Why, or why not?



Y. What activity in this problem area was most important to you? Write the name of the activity and why it was important to you.

Z. Explain a skill you have that has improved because of your Human Sciences activities. How could you show someone that this skill has improved?

AA. Mr. Dennis was visiting a Human Sciences class. He saw several students sitting in a corner of the room talking. He turned to a student in class and said, "Look at those kids goofing off. Kids in seventh grade need discipline. They need to be told what to do. The teacher should see that they do it." Pretend that you were the student. What would you say?

BB. Which activity in this problem area looked hardest to do? Write the name of the activity. Explain why it was hardest.

CC. Did you develop a new skill in this module? Explain how the skill has been useful to you since you developed it.

DD. How do you feel about the activities you completed in this problem area? Explain as well as you can why you feel this way.

PERCEPTION PROBLEM AREA ______________

CHOOSE YOUR PROBLEM WORK SHEET

Name ______________________ School ______________________

Teacher ______________________ Date ______________________

Write the problem letter you are answering in the space at the left. Copy the underlined part of the problem exactly as it is printed on the paper "Choose Your Problem."

Problem Letter	Copy the underlined part of the problem here:

Write your answer or make your drawing here.

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PERCEPTION
Human Sciences Program

PROBLEM AREA ______________
Side 1

EVALUATING THE QUALITY OF MY WORK

Name ____________________ School ____________________
Teacher ____________________ Date ____________________

This form is to be used with Problem V of Group 3, Choose Your Problem. It can be chosen only after you have chosen and answered one problem from Group 3 or Group 4.

Look at the answers you have produced on your Choose Your Problem Work Sheets for all problem areas in PERCEPTION. Use the key below to answer question numbers 1 to 6 about your answers. Circle the letters:

SA	if you strongly agree
A	if you agree a little
?	if you don't know if you agree or disagree
D	if you disagree a little
SD	if you strongly disagree

Circle One

1. My answers are to the point. They are answers to the questions. SA A ? D SD
2. My ideas in the answers seem clear. I understand the answers I wrote. SA A ? D SD
3. My ideas are presented clearly. SA A ? D SD
4. My answers are weak, they aren't persuasive. (I did not answer the questions convincingly.) SA A ? D SD
5. My answers are samples of the best work I can do. SA A ? D SD
6. My answers only partly deal with the questions. SA A ? D SD

Have one of your parents, an adult relative, a guardian, or some adult friend review the answers you produced on your four Choose Your Problem Work Sheets. Have them respond to each item on the back of this page.

After your adult rater has responded to the six questions, compare your responses to his or hers. Do you agree or disagree? Discuss the reasons for your ratings. Explain the reasons for your differences in the space below.

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Side 2

EVALUATING THE QUALITY OF MY WORK

Name of rater ______________________

Relationship to student ______________

The Human Sciences Program is attempting to help students learn skills for self-evaluation. Part of this skill development requires review and discussion with an interested adult. This review of work completed is to help the student develop his or her own criteria for quality of workmanship. The ratings you make should be based on your knowledge of this individual, not a comparison of his or her work to others. In order to complete this rating sheet, you will need Copy 1 of each of four Choose Your Problem Work Sheets completed by the student. Ask him or her to explain to you the self-evaluation tasks of the Human Sciences Program.

When you have reviewed the student's work, please respond to the six questions below about the student's work by using this key:

Circle the letters:

SA	if you strongly agree
A	if you agree a little
?	if you don't know if you agree or disagree
D	if you disagree a little
SD	if you strongly disagree

		Circle One
1.	The answers presented are to the point. They are answers to the questions.	SA A ? D SD
2.	I understand the answers from what is written.	SA A ? D SD
3.	The ideas are presented clearly.	SA A ? D SD
4.	The answers are weak, they aren't persuasive.	SA A ? D SD
5.	The answers are a sample of the best work this student can do.	SA A ? D SD
6.	The answers only partly deal with the questions.	SA A ? D SD

PERCEPTION
CHOOSE YOUR PROBLEM CODING PROTOCOLS

Perceiving
Choose Your Problem A:

People have blue eyes, brown eyes, gray eyes, or green eyes. Their eyes are different in color. But, everybody in the world has black pupils (centers) in their eyes. Why?

Everybody in the world has black pupils in their eyes. Why?

1 = pupil lets in light/pupil is clear, light is absorbed/eye is coated black inside/eye is dark/see inside the eye itself

2 = pupil is white, dark inside the eye/light is absorbed

3 = eye coated black, pupil helps adjust light/pupil is a hole/clear, black is not explained

4 = pupil not described, eye is coated black/dark inside/light absorbed

5 = pupils are the part of the eye you see from/to focus. Students answer question "Why does everyone have pupils in their eyes," not "Why does everyone have black pupils in their eyes."

6 = that's the way we were born, that's the way God made us, everybody is made equal, everybody is like that

7 = not codable

PERCEPTION
CHOOSE YOUR PROBLEM CODING PROTOCOLS

Exchanging Perceptions
Choose Your Problem U:

Get out your rules record. Look at the answers for your Choose Your Problem Work Sheets. Compare them with your answers to the Choose Your Problems you have completed during PERCEPTION. Explain how your answers have improved.

How have answers improved?

1 = more detail, more complex, better

2 = more scientific

3 = I have changed

4 = response related to materials change

5 = response not related to question

6 = not codable

PERCEPTION

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Any Problem Area
Choose Your Problem DD

How do you feel about the activities you completed in this problem area? Explain as well as you can why you feel this way.

Importance, Attitudinal

1 = fun, interesting, good, educating, helpful, nice, necessary, really neat, important, they all made sense, not too hard, not too easy, just right, I did good, I liked, I enjoyed, I feel happy, I feel great, I feel proud

2 = activities easy, not too much work to do

3 = hard

4 = Number 1 and Number 7

5 = boring, not fun, not interesting, not good, unnecessary, awful, dumb, I didn't like, I don't feel too happy, feel terrible, feel bad

6 = Number 1 and Number 2

7 = OK, some were okay, some were alright, some better than others and some were too easy, some things I learned from and some I didn't, only a few I didn't like, some didn't interest me at all, a few I did not understand, only a few of them were any good, some were fun and some were boring, some were dumb but some were okay

8 = Number 1 and Number 3

9 = no attitudinal response

(continued)

Importance, Cognitive

1 = more to learn about, learned alot, learned new thing about science, learned I would hate to be deaf, learned to use sign language, I can understand what happens

2 = not enough science, not educational, not enough animals to work with

3 = I liked activities because I chose them myself, I picked best ones, I chose activities that helped me most, chose fun and interesting activities

4 = activities all the same, like the past

5 = this problem area not as good as others

6 = this problem area better than the one before, best problem area ever

7 = most of the activities did not relate to topic of Using Perception

8 = two or more of the above

9 = no cognitive response

(continued)

Importance, Logistical

1 = getting equipment hard, waiting too long

2 = I didn't do anything, didn't do much, didn't do very many activities, would feel better if I did more work and less talking, I did not fill my goal

3 = did many activities, did better, I accomplished something, very satisfied because I really carried activity through, I feel I have done more than regular science--this is lots better

4 = more things to make, found neat ways of doing things, activities have a lot to do--it keeps you busy, I liked competition of Checkers: Fast and Different, tasting things fun, got to do everything yourself and make your own materials, liked activities where you play games or organized something

5 = activities took too long, took too much time at home

6 = too much paperwork, we should get out of class and see for ourselves, need more time

7 = didn't have to interview, you could do it alone

8 = like interviewing and getting to know others, you get to find out what other people think and feel, learn how other people communicate, like doing group work

9 = no logistical response

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS   ERASE STRAY MARKS

☐ ☐ ☐ ☐ ☐

Name ____________________

Teacher ____________________

Date ____________________

PERCEPTION: PERCEIVING

DIRECTIONS:

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

A-maze-ing

Color in Light

Day or Night

Experiments in Color

Eye Aye!

Fade Out--Fade In

Fighting Fish

Hi-Fi-Fo-Fum

NOW NEXT →

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How Does Taste Smell?	1 2 3 4
How Does Your Coleus Grow?	1 2 3 4 5
Is the Name the Same?	1 2 3 4 5
Measuring Temperature Change	1 2 3 4 5
Optricks	1 2 3 4 5
Other Ways of Seeing	1 2 3 4
Patterns or Confusion	1 2 3 4 5
Perceiving Growth	1 2 3 4 5
Plant Perception	1 2 3 4 5
Recognizing Faces	1 2 3 4 5
Spinners and Stoppers	1 2 3 4 5

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1 2 3 4 5

UF 1080

OPTICAL SCANNING CORPORATION

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS ERASE STRAY MARKS

Name ______________________

Teacher ______________________

Date ______________________

PERCEPTION: USING PERCEPTIONS

DIRECTIONS:

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

Checkers: Fast and Different

Commercial Watch

Hocus Focus

Is Anyone There?

Looking Down

Mapping It Out

Mystery Boxes

Noise Annoys

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On Time	1 2 3 4
Out-of-Sight	1 2 3 4 5
Putting Color to Work	1 2 3 4 5
Sun Watch	1 2 3 4 5
The Big Sell	1 2 3 4 5
What's Going on Here?	1 2 3 4
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
236	222 1 2 3 4 5

OPTICAL SCANNING CORPORATION

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS   ERASE STRAY MARKS

MY ACTIVITY RECORD

Name ____________________

Teacher ____________________

Date ____________________

PERCEPTION: EXCHANGING PERCEPTIONS

DIRECTIONS:

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

A Class Newspaper

Body Language

Caricatures

Categories

Codes and Ciphers

Communicating without Words

Handtalk

Making a Wireless Telegraph

NOW COMPLETE THE OTHER SIDE →

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OP 1079

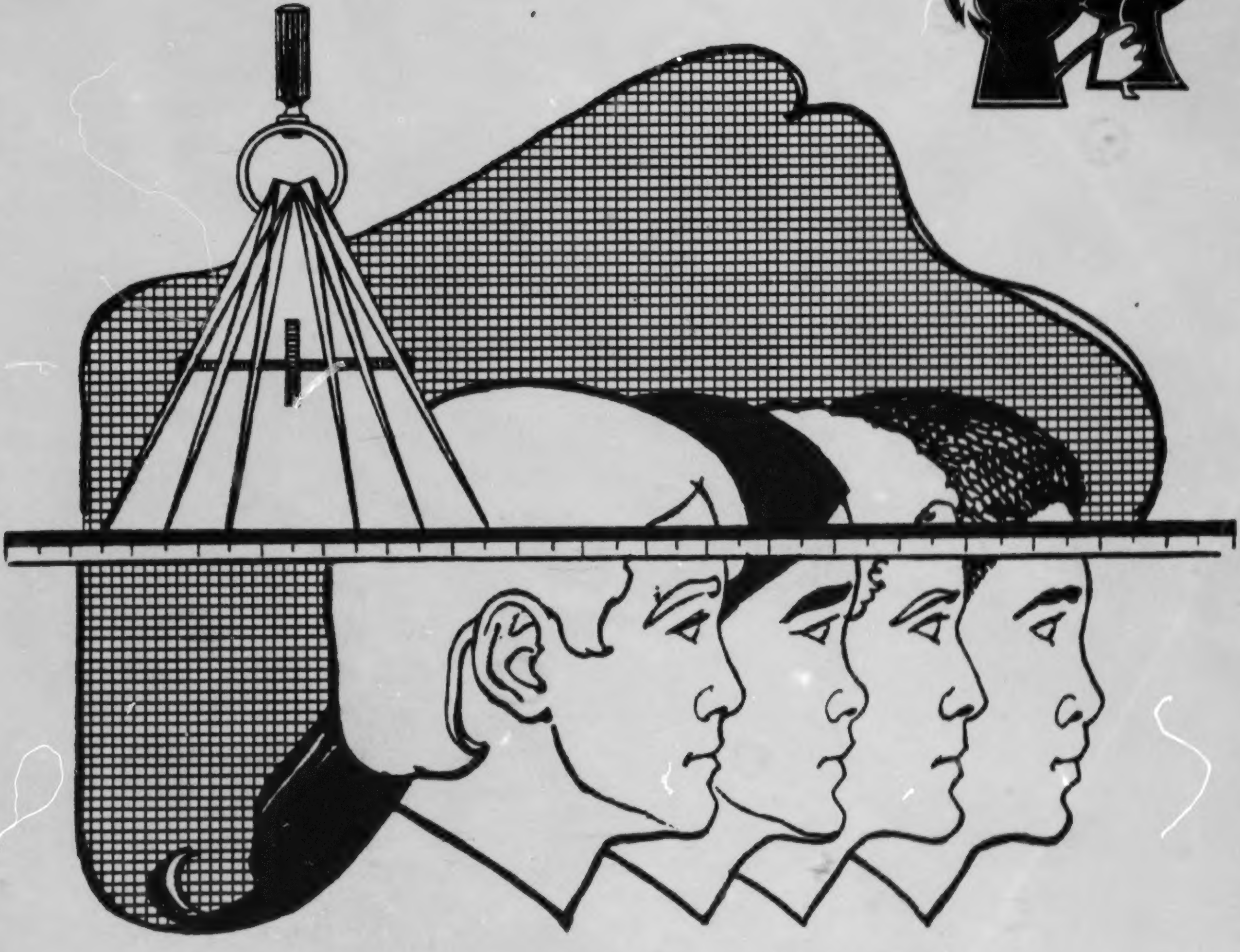
My Activity	1 2 3 4 5
One Writing for One World	1 2 3 4 5
Person of the Year	1 2 3 4 5
Sex-Role Images	1 2 3 4 5
What's New?	1 2 3 4 5
Who's Boss?	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5
	1 2 3 4 5

UF 1080

OPTICAL SCANNING CORPORATION

TEACHERS GUIDE

TO EVALUATION ACTIVITIES FOR REPRODUCTION



TEACHERS GUIDE TO EVALUATION ACTIVITIES FOR REPRODUCTION

The evaluation activities for the REPRODUCTION module are different from the evaluation activities of previous modules. The goal of evaluation for REPRODUCTION is for students to compile a variety of scaled scores that display as much about their learning involvement in the module as possible. The scaled scores will reflect a student's

1. opportunity to learn
2. knowledge and understanding of the module
3. skill development
4. feelings about accomplishments

Please read the following directions carefully. They are intended to help you and your students understand and successfully complete the evaluation materials for REPRODUCTION. Help your students where the directions are difficult for them to understand.

PROCEDURE

Schedule the evaluation activities for four or five class periods at the end of the module. You can determine the amount of time your classes will require for evaluation after you have reviewed the materials. Some students may feel that the time taken for this evaluation is too long. You might ask them to compare the time they have spent on evaluation activities for Human Sciences as compared to time spent on evaluation in other classes. We estimate that the time for HSP evaluation will be no more, and will probably be less, than time allocated to evaluation in other classes.

The following materials are provided for the formal evaluation period:

My Activity Record, Forms 1 and 2	These records are on two Optical Scan® sheets similar to those used in the WHERE DO I FIT? and

	PERCEPTION modules. These should be marked with a No. 2 pencil. One Form 1 and one Form 2 are provided per student.
Evaluation Booklets 1, 2, and 3	These three student booklets should be done sequentially, a day at a time. One copy of each booklet is provided per student.
Evaluation Summary Booklet	This booklet will help students calculate scaled scores for the test items. One copy is provided per student.
Importance and Reason Answer Guide	This Guide is printed separately to avoid repeating the rating scale for each item in Evaluation Booklets 1 and 2. One copy is provided per student.
Evaluation Profile Chart	Students will each need a Profile Chart as they work through the Evaluation Summary Booklet. One copy is provided per student (in pads).

Students will also need their completed REPRODUCTION Report folders.

MY ACTIVITY RECORD

Students should complete Forms 1 and 2 of My Activity Record, using their REPRODUCTION Report as a data source. This activity should be completed and the Optical Scan® forms collected before the other evaluation activities are initiated.

USING EVALUATION BOOKLETS 1, 2, AND 3

Give students copies of the evaluation booklets only during the formal evaluation periods. This procedure differs from any used thus far in the program. The evaluation booklets contain many multiple choice items for self-evaluation and student scoring. This type of question can be invalidated much more easily than can the open-ended questions provided in the Choose Your Problem activities of other modules.

The evaluation booklets are provided in consumable form, one of each booklet per student. We suggest that you use only one booklet in a single class period. A separate sheet, the Importance and Reason Answer Guide, will need to be used by students with Booklets 1 and 2. Have students put their name, your name, and the date in the spaces provided on the cover. Carefully read over the instructions found on page 1 with the students so that they know exactly what to do. Work through the sample item with your students. After you have explained and answered all questions about the procedure for using the evaluation booklets, have students turn to page 2. Remind them to first read the item and decide whether or not they want to answer it. If they do not want to answer the item, they should go on to the next one. If they choose to answer the item, they should mark their answer and then their rating of importance. A reason should also be marked for each question answered. Have students follow this same procedure for each item in Booklets 1 and 2.

Encourage students to answer thoughtfully and carefully as many questions as they can. They will show by their choice of items and by their answers the best representation of what has been learned in REPRODUCTION.

Please use standard test procedures while students are working with the evaluation booklets. Students should do their work independently and without discussion.

If you have students with reading difficulties in your class, please feel free to read each item aloud or to use other procedures to enhance student success.

SCORING THE EVALUATION BOOKLETS

Each booklet contains about 20 questions that students can answer. Completing each evaluation booklet will probably not take a full class period. Students might spend the remainder of the period working on activities, special projects, or helping to score the evaluation booklets.

Try to score each of the booklets on the day they are completed. Students will need these scores to complete the Evaluation Summary activities.

There are many options available in scoring the Evaluation Booklets. Use whatever method best fits your classroom and students. Students must feel that they are a part of this evaluation activity. Some teachers may want to personally score each test item using the key provided. Another method of scoring the booklets could involve the students. Some teachers may want to have students score their own booklets as much as possible. Many of the multiple choice items are particularly suited for this method. Some of the essay items are keyed so that they too can be scored by students. Decisions about whether to exchange booklets and other such procedures could be shared with your students.

Have students complete the summary box on the evaluation booklet cover after the scoring has been completed. Students need this information to complete the Evaluation Summary Booklet.

COMPUTING SCALED SCORES

The Evaluation Summary Booklet is provided to help students convert their test scores to scaled scores. This booklet provides students with a step-by-step procedure for computation processes. (As the scaled scores are computed, they are transferred to the Evaluation Profile Chart.)

You may find it helpful to make overhead transparencies of the booklet and work through the computations in a large group situation. Directions for using the Evaluation Summary Booklet are included in the Evaluation Booklets.

INTERPRETING THE PROFILE CHART

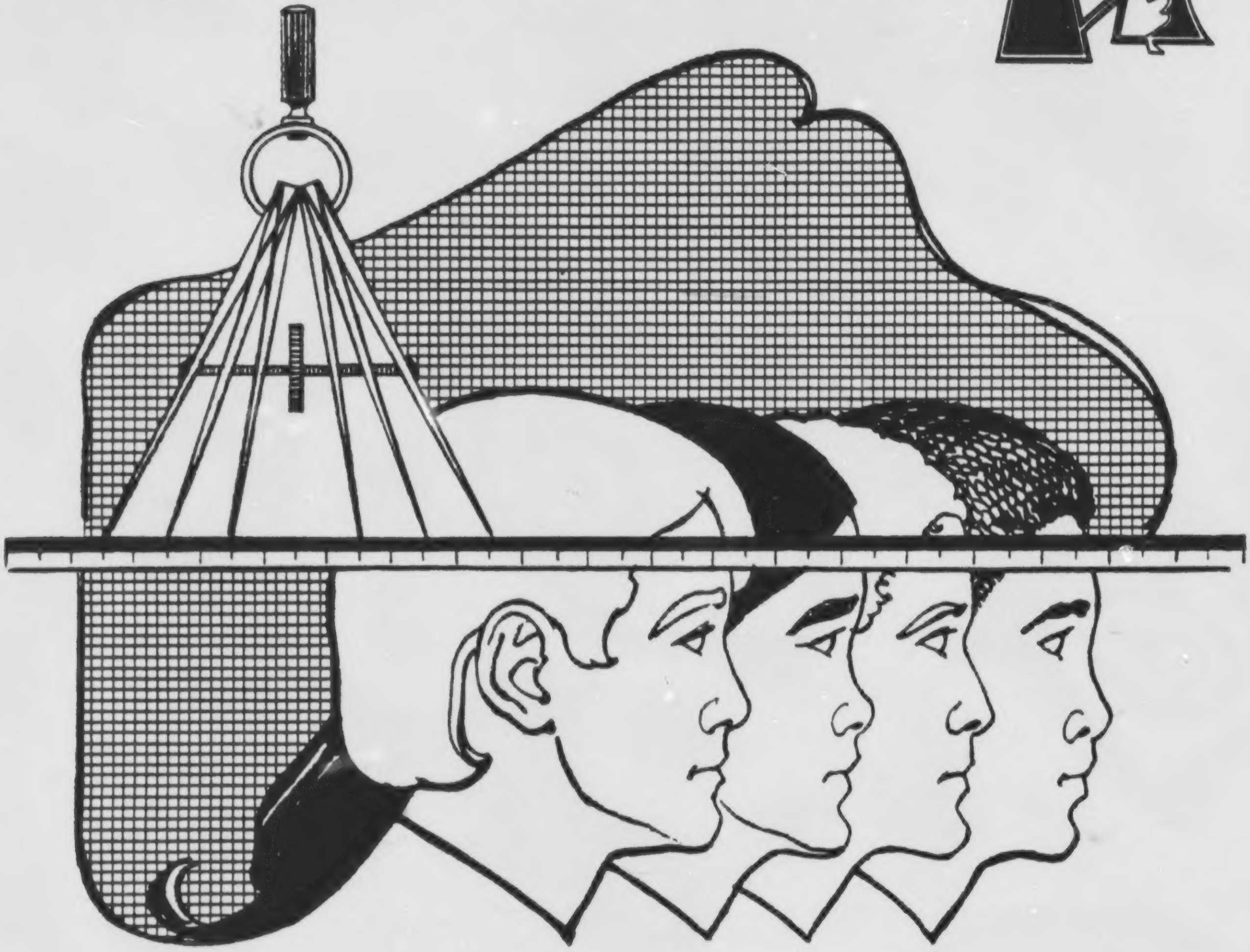
When students have constructed their Profile Charts, have them proceed to the What Does It Mean? section of their Evaluation Summary Booklet. This booklet is designed to help students interpret the quality and quantity of their work as displayed on the Profile Chart. You may want to have a large-group discussion of the meaning of the questions. Have students write down their explanations one at a time.

Please return all student evaluation booklets and the Evaluation Profile Charts to the Human Sciences, BSCS, after you have used them for any evaluation and grading problems you need to solve. The boxes in which the evaluation booklets were shipped contain return labels, shipping forms, and tape for sealing the boxes.

REPRODUCTION EVALUATION SCHEDULE

WHAT?	WHEN?	BY WHOM?	FOR WHOM?
Reproduction Report	Daily	Student	Student
My Activity Record	End of module, first formal evaluation activity	Student	HSP
Evaluation Booklet 1	Second formal evaluation activity	Student/ Teacher	Student/ Teacher/ HSP
Evaluation Booklet 2	Third formal evaluation activity	Student/ Teacher	Student/ Teacher/ HSP
Importance and Reason Answer Guide	With Evaluation Booklets 1 and 2 only	Student	Student
Evaluation Booklet 3	Fourth formal evaluation activity	Student/ Teacher	Student/ Teacher/ HSP
Evaluation Summary Booklet	Fifth formal evaluation activity	Student/ Teacher	Student/ Teacher/ HSP
Evaluation Profile Chart	Along with Evaluation Summary Booklet	Student/ Teacher	Student/ Teacher/ HSP
Annotated Teachers Guide	Throughout module	Teacher	HSP
Best Products	At least one per problem area	Student	Student

WHAT I HAVE LEARNED



WHAT I HAVE LEARNED

INTRODUCTION

Self-evaluation for REPRODUCTION will be different from evaluation in other Human Sciences modules. You will need to keep track of activities as you have done before. Keep this information in your Reproduction Report. Also, keep examples of your best work in your Reproduction Report folder. The differences in evaluation activities for REPRODUCTION are:

1. Most of the evaluation is at the end of the module. There are no evaluation periods scheduled during the module.
2. You do not get to see the evaluation questions until the end of the module.
3. Problems and questions for evaluation are more like a regular test.
4. You can answer as many questions as you want--not just one or two questions.
5. You can evaluate skills you might have developed during the module.
6. You can rate how you liked each activity--including the evaluation activities.

EVALUATION MATERIALS

Reproduction Report
What I Have Learned
My Activity Record
Reproduction Evaluation Booklets and Work Sheets

KEEPING RECORDS AND MATERIALS

Fold and staple or tape the flap for your Reproduction Report. Be sure to write down the date you start each activity. There are several long-term activities in REPRODUCTION. It is very easy to forget when you started these activities. You might be working with several activities at the same time. Accurate records will help you keep track of each activity you do. In your folder, write down comments that you want to remember. Write them down when you first think of them.

EVALUATION SCHEDULE

Several class periods will be needed at the end of the module for the written evaluation activities.

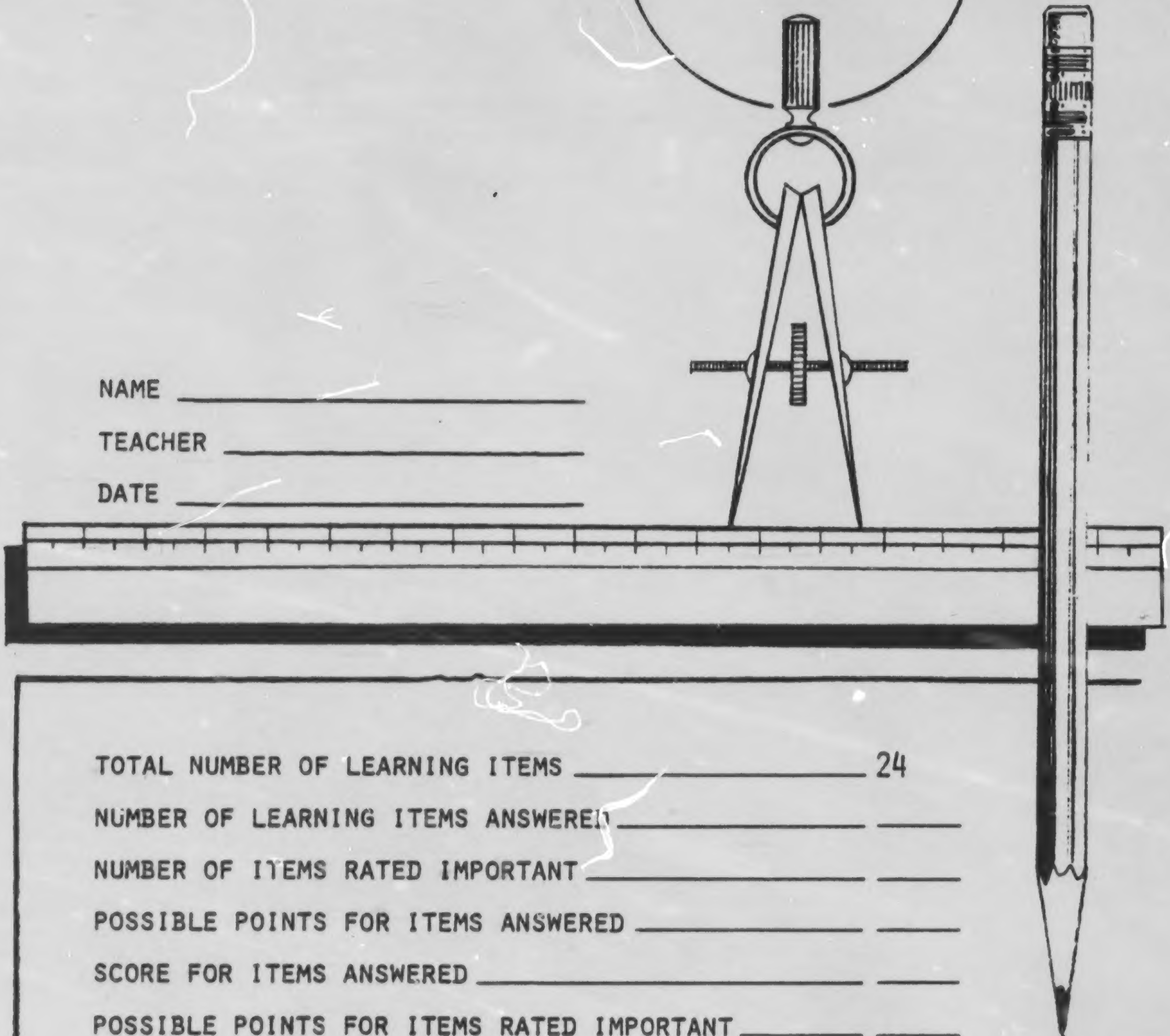
You will need your Reproduction Report and a No. 2 pencil for the evaluation periods. First, you will fill out the My Activity Record forms for REPRODUCTION. When you complete the forms, your teacher will hand out the Reproduction Evaluation Booklet. Further instructions are on the cover of the booklet.

One last thing. Thank you very much for your help in testing Human Sciences this year. The HSP staff has enjoyed your letters and the samples of your work that we have received.

Have a good summer. We hope to see many of you again next year.

EVALUATION BOOKLET

1



NAME ______________________

TEACHER ______________________

DATE ______________________

TOTAL NUMBER OF LEARNING ITEMS ______________ 24

NUMBER OF LEARNING ITEMS ANSWERED ______________ _____

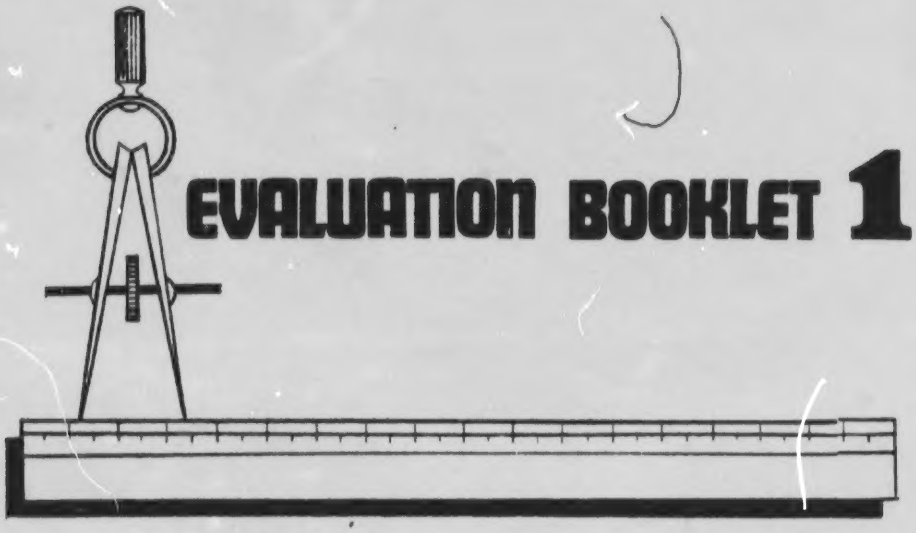
NUMBER OF ITEMS RATED IMPORTANT ______________ _____

POSSIBLE POINTS FOR ITEMS ANSWERED ______________ _____

SCORE FOR ITEMS ANSWERED ______________ _____

POSSIBLE POINTS FOR ITEMS RATED IMPORTANT ______________ _____

SCORE ON IMPORTANT ITEMS ______________ _____



EVALUATION BOOKLET 1

This booklet contains problems to solve, statements to check, questions to answer, and judgments to make.

Read each item. Decide whether or not you can answer it. You do not need to answer every item, but answer as many as you can. You can choose not to answer questions. Your goal is to successfully answer as many problems as you can.

Your scores will be put on scales to help you make judgments about the quantity and quality of your work in the REPRODUCTION module.

Each item has three parts. Read the Practice Item below.

ITEM	IMPORTANCE AND REASON
Practice Item: From fertilization to birth a human baby usually needs to develop for a. 4 months b. 6 months c. 9 months d. 12 months e. 15 months	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

If you choose to answer the Practice Item:

1. Circle the letter of the one best answer.

2. Place your Importance and Reason Answer Guide next to the Practice Item as shown below.

IMPORTANCE AND REASON	IMPORTANCE AND REASON ANSWER GUIDE	
I ☐	I	Important
NI ☐	NI	Not Important
a. ☐	a.	Everyone my age should know it.
b. ☐	b.	I'll need to know it later.
c. ☐	c.	I want to learn as much as I can.
d. ☐	d.	It's too technical (has special use only).
e. ☐	e.	I don't see any reason for knowing it.
f. ☐	f.	None of these.

3. Rate the question as important or not important to you by putting an X in the proper square.

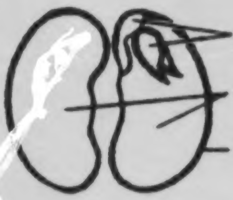
4. Put an X by the letter of the statement that best describes your reason for marking the item important or not important.

(THE BEST ANSWER FOR THE PRACTICE ITEM IS c. 9 months)

ITEMS 1-6

IMPORTANCE AND REASON

Look at the drawing below. Write the names of the parts of the seed. Write the function (what the part does) opposite the name of the part.



	Name of Part		Function (job part does)
1.	____________	4.	______________________
2.	____________	5.	______________________
3.	____________	6.	______________________

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 7

IMPORTANCE AND REASON

John had two of the same kind of plants. One plant had red flowers. The other plant had white flowers. John wanted to produce plants with different flower colors.

a. He can't do it, because a plant with red flowers is not the same kind of plant as one with white flowers.

b. He can't do it, because seeds from white-flowered plants will produce only white-flowered plants.

c. He could try to do it by growing cuttings taken from red-flowered and white-flowered plants.

d. He could try to do it by putting pollen from a red-flowered plant on a white flower and then plant the seeds.

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 8	IMPORTANCE AND REASON
Identical twins a. must be the same sex. b. can be of different sexes. c. must be of different sexes.	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 9	IMPORTANCE AND REASON
The reason for my choice to Item 8 about identical twins is that identical twins develop from a. two different fertilized eggs. b. a single fertilized egg. c. either one or two fertilized eggs.	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 10

IMPORTANCE AND REASON

Describe the major events in the birth of a baby.

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEMS 11-16

IMPORTANCE AND REASON

Read each statement below. Write the letter of the right statement in the blanks to the left of the numbers.

M. describes the Medaka embryo, but not the human embryo

H. describes the human embryo, but not the Medaka embryo

B. describes both the Medaka embryo and the human embryo

N. describes neither the Medaka nor the human embryo

____ 11. develop in a watery environment
____ 12. must be kept warm
____ 13. carried in the mother's body
____ 14. needs a food supply
____ 15. has a very large head
____ 16. begins life as a microscopic fertilized egg

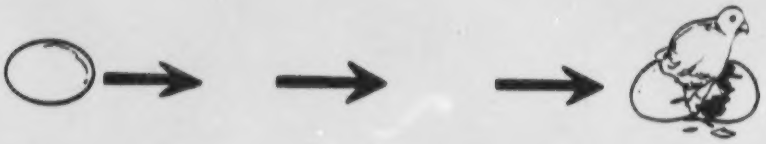
I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 17	IMPORTANCE AND REASON
Mrs. Nelson runs Cheeryvale, a home for handicapped people. She provides a warm and friendly place for some adults of various ages and both sexes. These people work at simple jobs in the community but are not able to live by themselves. Jim, John, Joan, Karen, Laura, Frank, Marge, and Scott are mentally retarded. Peter, Donna, and Lori have severe physical handicaps. Everyone helps in running the house, preparing meals, planning parties, and other activities. The group has been together several years and enjoys each other's company. Are the people living at Cheeryvale a family? Why or why not?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 18	IMPORTANCE AND REASON
The term "sexual reproduction" can be used correctly for a. all kinds of animals, but not plants. b. only human beings. c. most plants and animals. d. only fish, birds, amphibians, reptiles and mammals. e. all kinds of plants and people, but not for animals.	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 19	IMPORTANCE AND REASON
Sperm are made in a male's a. scrotum. b. prostate glands. c. testicles. d. sperm ducts. e. penis.	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 20	IMPORTANCE AND REASON
How are the conditions in which a chick embryo develops similar to the conditions in which a human embryo develops?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEMS 21-22	IMPORTANCE AND REASON
Complete the series of drawings below. Label as many parts of each drawing as you can. 	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 23	IMPORTANCE AND REASON
Mary wants to find out if bean seed embryos alone would grow into seedlings. She has 100 bean seeds. What is the best way for her to answer her question?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 24	IMPORTANCE AND REASON
If someone asked me to explain how flowering plants reproduce, I would say:	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 25	IMPORTANCE AND REASON
Cloning of people a. is possible, but has not been done. b. has been done secretly. c. is not possible now, but has been done with simple animals. d. is not possible, and has never been done.	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 26

IMPORTANCE AND REASON

Your older sister is pregnant. She is trying to decide whether to breast- or bottle-feed her baby. What are two advantages to either breast- or bottle-feeding?

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

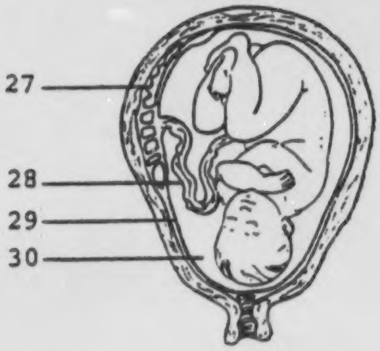
ITEMS 27-34

IMPORTANCE AND REASON

Look at the drawing below. Write the names of the parts and their functions (what the part does).

	Name of Part		Function (job part does)
27.	______	31.	______
28.	______	32.	______
29.	______	33.	______
30.	______	34.	______

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐



ITEM 35

If kids from one child families, two children families, three children families, etc., had the same size family as they grew up in, the new generation would be

a. a little smaller than theirs.

b. about the same size as theirs.

c. about twice the size of theirs.

d. about four times the size of theirs.

IMPORTANCE AND REASON

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 36

What determines the sex of a baby?

a. phases of the moon.

b. X and Y chromosomes in eggs and sperm.

c. the amount of sperm in semen.

d. the day of intercourse.

IMPORTANCE AND REASON

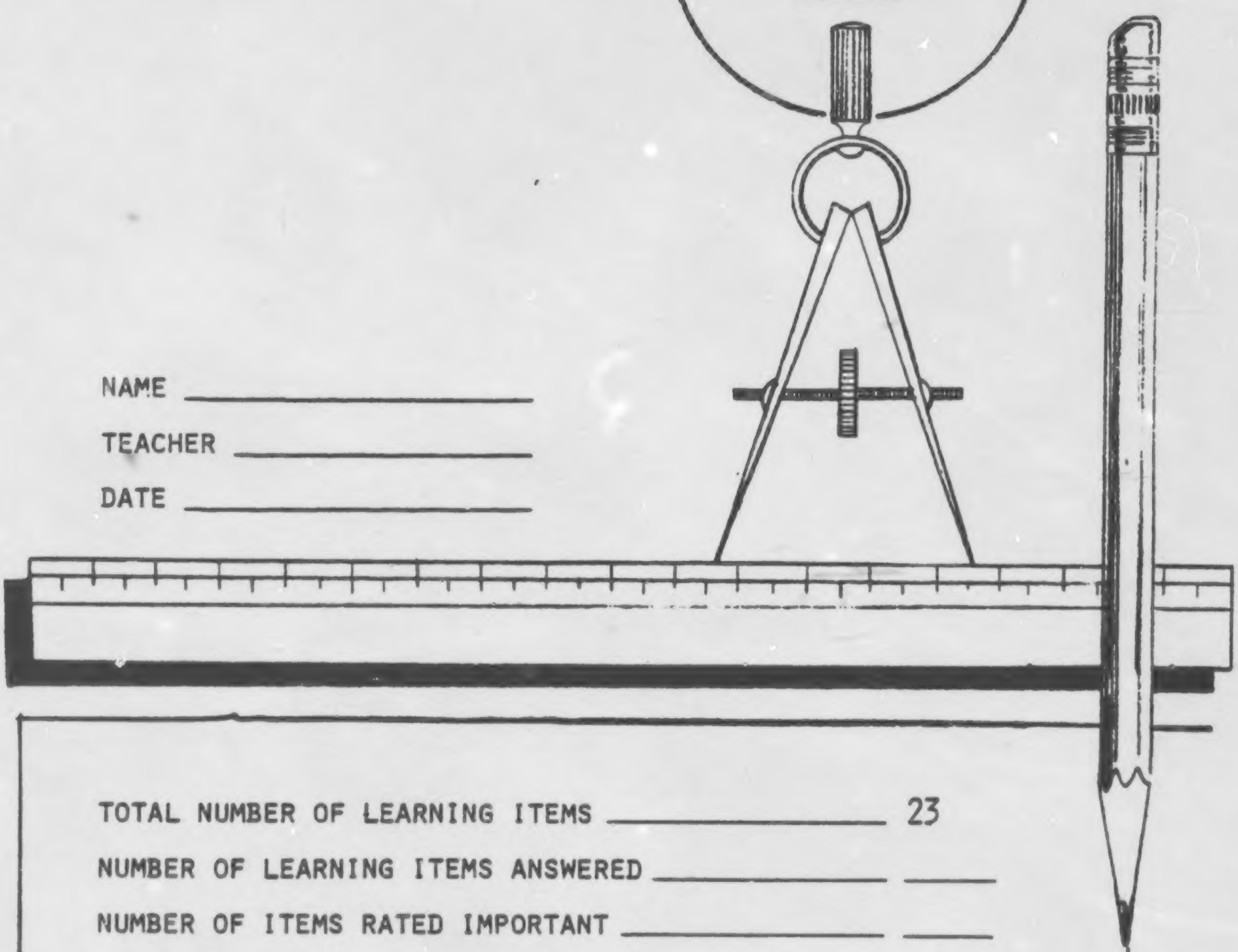
I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 37	IMPORTANCE AND REASON
What things are done to a newborn baby after it is born?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 38	IMPORTANCE AND REASON
What did you learn about birth defects from the activity "Living with Birth Defects"?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

EVALUATION BOOKLET

2



NAME ____________________

TEACHER ____________________

DATE ____________________

TOTAL NUMBER OF LEARNING ITEMS ____________________ 23

NUMBER OF LEARNING ITEMS ANSWERED ____________________ _____

NUMBER OF ITEMS RATED IMPORTANT ____________________ _____

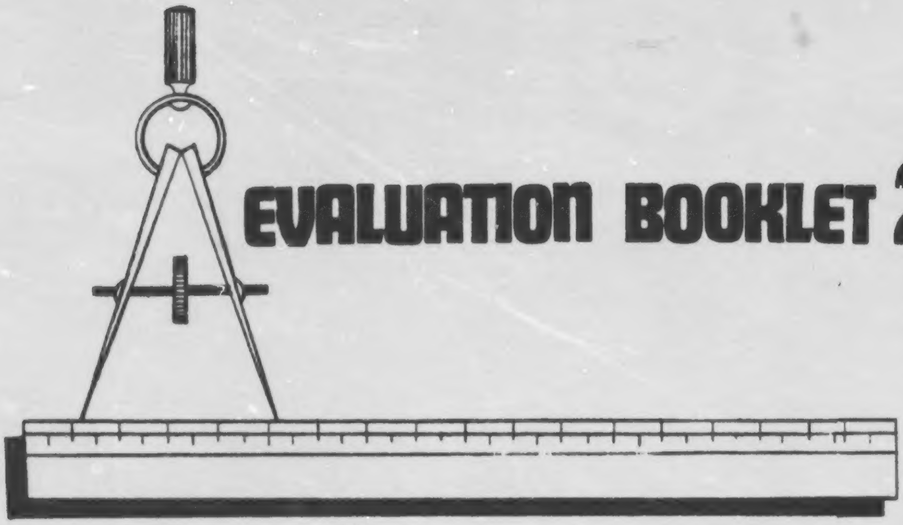
POSSIBLE POINTS FOR ITEMS ANSWERED ____________________ _____

SCORE FOR ITEMS ANSWERED ____________________ _____

POSSIBLE POINTS FOR ITEMS RATED IMPORTANT ______ _____

SCORE ON IMPORTANT ITEMS ____________________ _____

EVALUATION BOOKLET 2



This booklet contains problems to solve, statements to check, questions to answer, and judgments to make.

Read each item. Decide whether or not you can answer it. You do not need to answer every item, but answer as many as you can. You can choose not to answer questions. Your goal is to successfully answer as many problems as you can.

Your scores will be put on scales to help you make judgments about the quantity and quality of your work in the REPRODUCTION module.

Each item has three parts. Read the Practice Item below.

ITEM	IMPORTANCE AND REASON
Practice Item:	I ☐
From fertilization to birth a human baby usually needs to develop for .	NI ☐
a. 4 months	a. ☐
b. 6 months	b. ☐
c. 9 months	c. ☐
d. 12 months	d. ☐
e. 15 months	e. ☐
	f. ☐

If you choose to answer the Practice Item:

1. Circle the letter of the one best answer.

2. Place your Importance and Reason Answer Guide next to the Practice Item as shown below.

IMPORTANCE AND REASON	IMPORTANCE AND REASON ANSWER GUIDE	
I ☐	I	Important
NI ☐	NI	Not Important
a. ☐	a.	Everyone my age should know it.
b. ☐	b.	I'll need to know it later.
c. ☐	c.	I want to learn as much as I can.
d. ☐	d.	It's too technical (has special use only).
e. ☐	e.	I don't see any reason for knowing it.
f. ☐	f.	None of these.

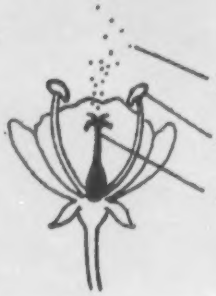
3. Rate the question as important or not important to you by putting an X in the proper square.

4. Put an X by the letter of the statement that best describes your reason for marking the item important or not important.

(THE BEST ANSWER FOR THE PRACTICE ITEM IS c. 9 months)

ITEMS 39-44

Write the names of parts of the flower that you know. Write the function (what the part does) next to the the name of the part.



Name of Part	Function (job part does)
39. ____________	42. ______________________
40. ____________	43. ______________________
41. ____________	44. ______________________

IMPORTANCE AND REASON

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 45

The drawing below shows how Sue cut off the parts of a flower before the parts matured. Then she put a plastic bag over the flower and closed it. Why do you think Sue did this?

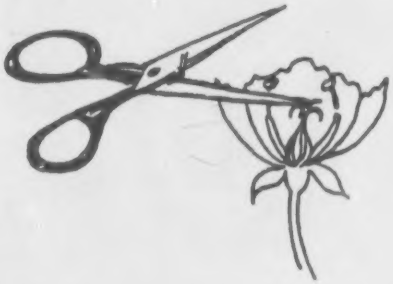
a. to let the flower put more energy into other parts

b. to keep the flower from getting pollen

c. to remove parts that get in the way of reproduction

d. to experiment

e. to increase the chance that seeds will form



IMPORTANCE AND REASON

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 46	IMPORTANCE AND REASON
Fertilization is a term that can be used correctly to describe a process in	I ☐
a. animals and plants.	NI ☐
b. animals, but not plants.	a. ☐
c. most animals and plants, but not people.	b. ☐
d. people and other mammals, but not fish and birds.	c. ☐
e. animals, but not plants or people.	d. ☐
	e. ☐
	f. ☐

ITEM 47	IMPORTANCE AND REASON
Eggs are produced in a woman's	I ☐
a. stomach.	NI ☐
b. ovary.	a. ☐
c. uterus.	b. ☐
d. oviduct.	c. ☐
e. pelvis.	d. ☐
	e. ☐
	f. ☐

ITEM 48

IMPORTANCE AND REASON

Read the newspaper ad from India shown below. In your own words describe the man who placed the ad and the kind of woman he is looking for.

HOMELY decent Graduate girl for West Punjabi Hindu bachelor. Graduate, 28, business income four figures. Decent family. Box 32307-CA, Hindustan Times, New Delhi-1.

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEMS 49-54

IMPORTANCE AND REASON

Describe three sex characteristics of a male and three sex characteristics of a female animal of the same kind. Describe animals other than humans.

Name of animal ____________________

Male characteristics		Female characteristics
49. ______________	52.	______________
50. ______________	53.	______________
51. ______________	54.	______________

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 55	IMPORTANCE AND REASON
What are some of the things young children need from their parents?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 56	IMPORTANCE AND REASON
A baby normally develops inside a woman's a. oviduct. b. uterus. c. vagina. d. ovary. e. abdomen.	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 57	IMPORTANCE AND REASON
How is a fertilized egg different from a non-fertilized egg?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 58	IMPORTANCE AND REASON
What are two advantages or two disadvantages of arranged marriages?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

ITEM 59

IMPORTANCE AND REASON

Describe or make at least two sketches of the development of a fertilized Medaka fish egg.

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 60

IMPORTANCE AND REASON

Are there requirements that both plant and animal embryos need to grow?

a. Yes, they both need ______________________________
____
____

b. No, because ______________________________
____
____

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEM 61	IMPORTANCE AND REASON
Imagine an animal, a blob. It reproduces by pulling itself apart, making two blobs. A blob eats, rests, and reproduces. It can reproduce only once in 24 hours. If you were given one new blob, how many days would it take for you to have 16 blobs?	I ☐ NI ☐ a. ☐
a. 16	b. ☐
b. 12	c. ☐
c. 8	d. ☐
d. 6	e. ☐
e. 4	f. ☐

ITEM 62	IMPORTANCE AND REASON
Young children need toys because	I ☐
a. they're fun to play with.	NI ☐
b. they help the child learn to walk at an early age.	a. ☐
c. they help the child learn to talk at an early age.	b. ☐
d. they stimulate senses for normal growth.	c. ☐
e. they are good gifts.	d. ☐
	e. ☐
	f. ☐

ITEM 63

IMPORTANCE AND REASON

Write a short paragraph describing what a boy or girl might have done on a date 40-50 years ago.

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

ITEMS 64-69

IMPORTANCE AND REASON

Make a drawing of either the human male or female reproductive system. Label and give the functions of at least three parts shown in your drawing.

	Name of Part		Function (job part does)
64.	____________	67.	________________________
65.	____________	68.	________________________
66.	____________	69.	________________________

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐

ITEMS 70-73

IMPORTANCE AND REASON

Read each statement below. Write the letter of the correct statement in the blank to the left of the number.

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐

H. describes humans but not other mammals

A. describes all mammals

N. does not describe most mammals

M. describes other mammals but not humans

____70. Females have mammary glands to nurse their young.

____71. Females can choose to breast- or bottle-feed their young.

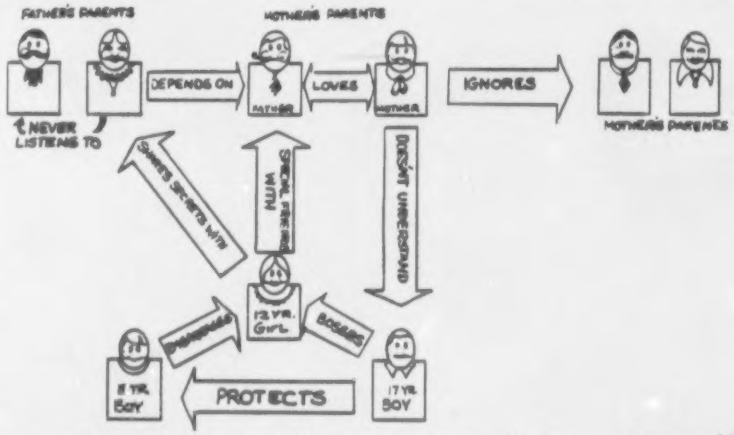
____72. The young are born naked and with their eyes closed.

____73. The young are hatched from eggs outside the mother's body.

ITEM 74

IMPORTANCE AND REASON

I ☐
NI ☐
a. ☐
b. ☐
c. ☐
d. ☐
e. ☐
f. ☐


FATHER'S PARENTS
MOTHER'S PARENTS
DEPENDS ON
FATHER
LOVES
MOTHER
IGNORES
MOTHER'S PARENTS
NEVER LISTENS TO
SHARES SECRETS WITH
SPECIAL FRIENDS WITH
DOESN'T UNDERSTAND
12 YR. GIRL
BOSSES
8 YR. BOY
PROTECTS
17 YR. BOY

Look at the family relationships diagram above. Describe the family relationships shown. Which members of this extended family are closest?

ITEM 75	IMPORTANCE AND REASON
When are birth certificates used?	I ☐ NI ☐ a. ☐ b. ☐ c. ☐ d. ☐ e. ☐ f. ☐

IMPORTANCE AND REASON ANSWER GUIDE

EVALUATION BOOKLETS 1 AND 2

I	Important
NI	Not Important
a.	Everyone my age should know it.
b.	I'll need to know it later.
c.	I want to learn as much as I can.
d.	It's too technical (has special use only).
e.	I don't see any reason for knowing it.
f.	None of these.

If you choose to answer an item:

1. Circle the letter of the one best answer. (For some items you will need to write a short paragraph.)
2. Place your IMPORTANCE AND REASON ANSWER GUIDE next to the item as shown below:

IMPORTANCE AND REASON		IMPORTANCE AND REASON ANSWER GUIDE	
I	☐	I	Important
NI	☐	NI	Not Important
a.	☐	a.	Everyone my age should know it.
b.	☐	b.	I'll need to know it later.
c.	☐	c.	I want to learn as much as I can.
d.	☐	d.	It's too technical (has special use only).
e.	☐	e.	I don't see any reason for knowing it.
f.	☐	f.	None of these.

3. Rate the question as important or not important to you by putting an X in the proper square.
4. Put an X by the letter of the statement that best describes your reason for marking the item important or not important.

If you choose not to answer an item, go on to the next one

USE THIS GUIDE FOR EVALUATION BOOKLETS 1 and 2.

ANSWER KEY TO
EVALUATION BOOKLETS 1 AND 2

The following are suggested answers for each question in Evaluation Booklets 1 and 2. Synonyms and alternative explanations may exist in many cases. Alternative answers are separated by a slash (/) mark. Well-reasoned alternatives of validity equal to those supplied in this key should be acknowledged.

Most questions are counted as one point. Several are counted as more than one. You will need to make judgments in scoring. There are 75 questions that students could answer.

If students answer all questions with highest quality responses, the maximum score would be 47 points for Evaluation Booklet 1 and 50 points for Evaluation Booklet 2, for a total maximum score of 97.

KEY: EVALUATION BOOKLET I

1. Embryo, hypocotyl
2. Cotyledon, food
3. Seed coat
4. Make new plant
5. Feeds embryo, for growth
6. Protection, protects
7. d
8. a
9. b
10. Stage 1--muscles of uterus contract, start slowly,
            increase to three minute intervals

    Stage 2--cervix opens, baby is born

    Stage 3--placenta is pushed out

    [3 points, 1 for each stage description]
11. B
12. B
13. H
14. B
15. B
16. H
17. (Students should mention such things as affection, biological relationship, shared responsibility, mutual interest and well being in defending their view;) [up to 2 points]
18. c
19. c
20. At least one: both kept warm/watery environment, need food

21. drawing must show development, at least embryonic plate on yolk

22. drawing must show some detail beyond embryonic plate, but not a fully developed chick

23. There are four types of answers. They need be similar only in form to the four cited below. Different quality responses should receive different points. Points are given in parentheses.

    (0) Plant 100 whole bean seeds.

    (1) Remove the embryos from 100 bean seeds. Plant the embryos.

    (2) Remove the embryo from 50 bean seeds. Plant the embryos and plant the other 50 bean seeds.

    (3) Remove the embryos from 25 bean seeds. Plant them. Remove the seed coat and one cotyledon from 25 seeds. Plant the embryos with one cotyledon. Remove the seed coat from 25 seeds. Plant them. Plant the other 25 seeds.

24. by sexual reproduction/pollen goes on the pistil, fertilizes the "seed" and the seed develops

25. c

26. breast: protection against infection/economy/physical closeness with mother/no need for fixing formula

    bottle: others than mother can care for child/mother has more personal freedom/modesty factor/
    [up to 2 points]

27. placenta

28. umbilical cord

29. amnion

30. amniotic fluid

31. gets blood/food/air/from mother; attaches child to mother

32. carries food/air/wastes to and from mother/child

33. protects

34. protects

35. c

36. b

37. [weighing, measuring/APGAR scale/identifying/umbilical cord is cut and clamped/remove mucous from respiratory track; up to 3 points]

38. [Student responses will depend upon their experiences with the activity: facts, feelings, or attitudes are all acceptable. 1 point/idea; up to 3]

END OF EVALUATION BOOKLET 1

KEY: EVALUATION BOOKLET 2

39. pollen

40. pollen sac/stamen

41. pistil

42. fertilizes the flower (pistil)

43. produces pollen

44. catch pollen/protect seed

45. b

46. a

47. b

48. (Students should include two or more of the following: a description of physical characteristics, age, economic status. Homely means home-loving;) [up to 2 points]

49, 50, 51
(Will depend on the animal. In African lions, for example; heavy mane, larger size than female, defends pride but doesn't hunt.) [1 point, must have three characteristics]

52, 53, 54
(Will depend on animal. In African lions, for example; smaller than male, mammary glands, major hunter for the pride.) [1 point, must have three characteristics]

55. [Student responses can include: food, clothing, sleep, development of senses and social and emotional security, [1 point for each response; up to 3]

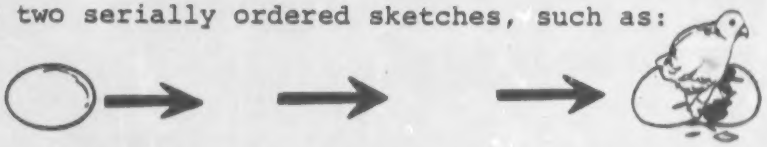
56. b

57. It has materials (stuff) from a sperm (pollen grain)/ it is sperm and egg together.

58. advantages: avoids competition/security/suitable mate is determined by experienced parents

disadvantages: lack of personal choice/disregard for "love" [up to 2 points]

59. Any two serially ordered sketches, such as:



1 point for each sketch, 2 for order, total = 4 points

60. a. Yes, they both need food, protection/heat, moisture/ water. [Weight this question a maximum of three, one for each requirement]

61. e

62. [a, b, c; 1 point; d, 2 points; e, 0 points]

63. (Answer will depend on interview experience. Look for two specific descriptions of activities rather than vague generalizations) [up to 2 points]

64-69
(Use charts from "Putting It All Together" as references.) [1 point each response, total of 6 points for 6 items]

70. A

71. H

72. M

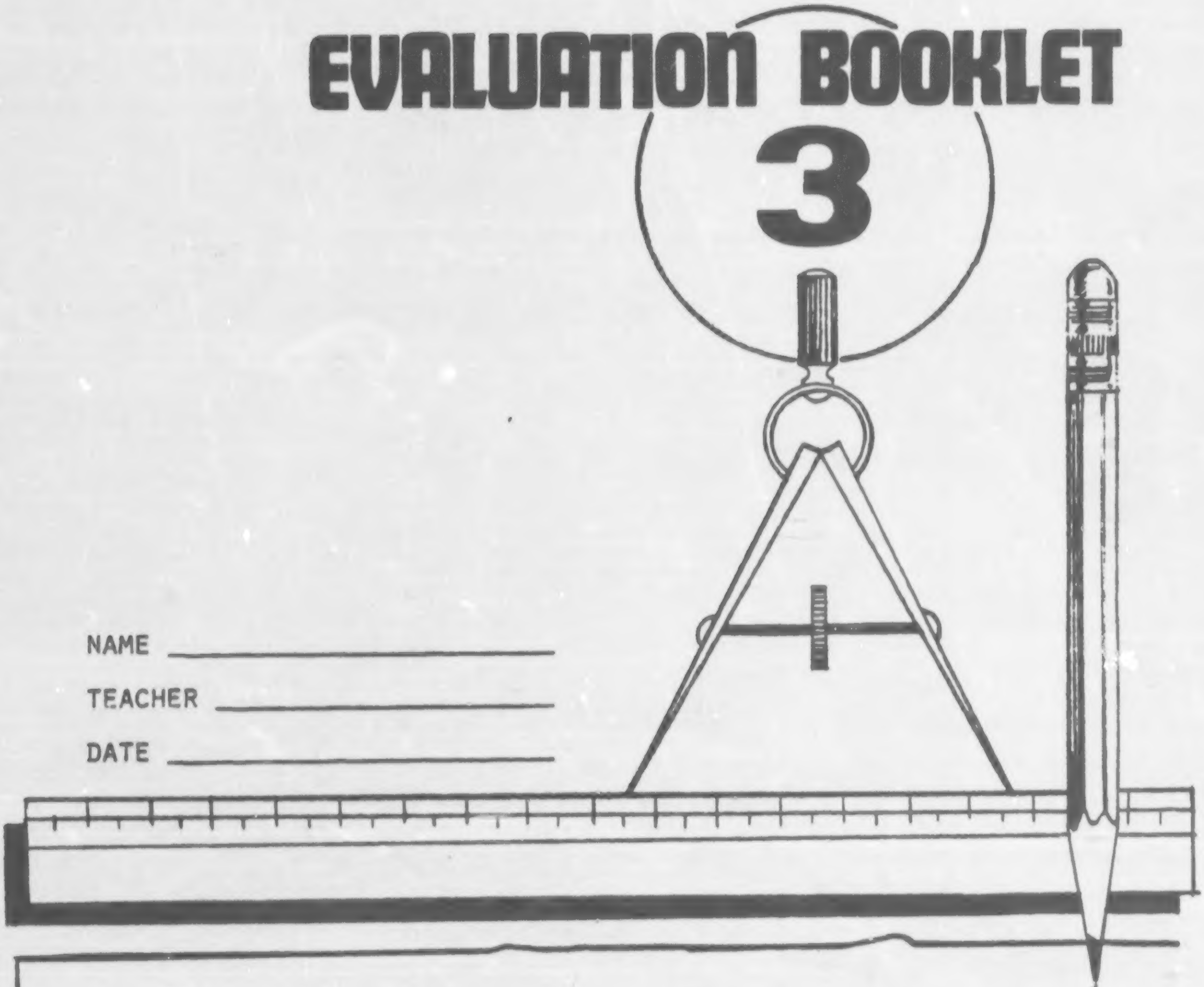
73. N

74. (Students should describe at least three specific relationships within the nuclear family and note the nature of the extended family) [up to 4 points]

75. entering school/marriage license/driver's license/ passports/recreation leagues [1 point for each, up to 2]

EVALUATION BOOKLET

3



NAME ____________________

TEACHER ____________________

DATE ____________________

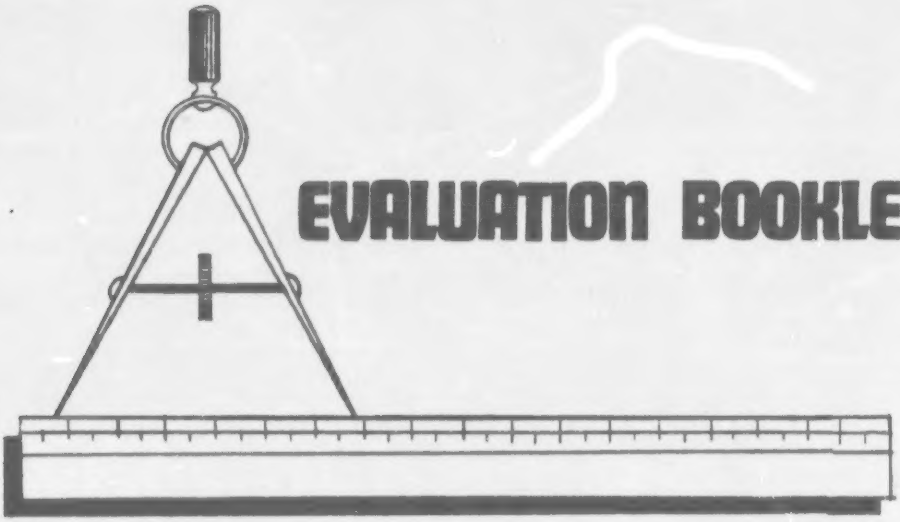
SKILLS

Number of skill items answered ____________ ____
Number answered by "a" ____________ ____
Number answered by "b" ____________ ____
Number answered by "c" ____________ ____

FEELINGS

My responses to the following items were 93 = ____
97 = ____
98 = ____

My responses to the following items were 89 = ____
90 = ____
95 = ____
96 = ____



EVALUATION BOOKLET 3

This evaluation booklet contains statements about skills you may have learned while working on the REPRODUCTION module. In addition, there are statements that you may mark to show how you feel about the module.

SKILLS

Problems 76 to 88 are statements about skills. Mark one of the three statements that best describes your experience. If you didn't have the experience, do not mark the statement. Skip it and go to the next.

Practice Item:

I. Last year in Human Sciences I built a fly-wing glider that:

- a. would turn or fly straight when I wanted it to
- b. would fly, but I couldn't make it do exactly what I wanted it to do
- c. wouldn't fly

If you did build a glider in Human Sciences last year, mark a, b, or c. If you didn't build a glider, you would skip to the next problem.

SKILLS I DEVELOPED

Mark an X in the blank that best describes your experience. Don't mark an answer if you don't have the experience.

76. When I worked with Medaka fish,

_____a. I kept most of the Medaka embryos alive

_____b. I kept a few of the Medaka embryos alive

_____c. I was unable to keep the Medaka embryos alive

77. When I worked with chicken eggs,

_____a. I constructed an incubator that worked

_____b. I constructed an incubator, but the chicks never hatched

_____c. I constructed an incubator, but it didn't work

78. When I worked with baby chicks,

_____a. I constructed a brooder that worked

_____b. I constructed a brooder, but some of the chicks died

_____c. I constructed a brooder, but it didn't work

79. When I worked with "Why Unborn Babies Don't Get Hurt,"

_____a. I designed and built my own model

_____b. I built a model like the one in the activity

_____c. I started a model but never finished it

80. When I worked with "From Fertilized Egg to Birth,"

_____a. I made clay models of human embryos that accurately showed the general form

_____b. I made clay models of human embryos but had trouble making them accurate

_____c. I started clay models of human embryos but didn't complete any

81. When I worked with seeds,

_____a. most (more than half) of the seeds I planted sprouted

_____b. few (half or less) of the seeds I planted sprouted

_____c. none of the seeds I planted grew

82. When I tried to grow cuttings,

_____a. most (more than half) of the cuttings I planted grew

_____b. few (half or less) of the cuttings I planted grew

_____c. none of the cuttings I planted grew

83. When I worked with geraniums (or a substitute plant),

_____a. I kept all my plants alive and healthy

_____b. I kept most of my plants alive

_____c. my plants died

84. After working with geranium flowers

_____a. some of my flowers produced seed pods

_____b. none of my flowers produced seed pods

85. When I worked with small mammals,

_____a. I maintained the environment and observed the growth of the young

_____b. I maintained the environment but some of the young died

_____c. I maintained the environment but all the young died

86. When I worked with "My Ideal,"

_____a. I combined my data deck cards with those of others and sorted them to compare responses

_____b. I only made a data deck pattern card and interviewed people

_____c. I only made the data deck pattern card

87. When I made a toy,

_____a. it was well-constructed and interested the child

_____b. it was safe to use but didn't interest the child

_____c. it was not very strong and fell apart

88. When I baby-sat I

_____a. planned ahead, interacted with the child, and kept a record of my experiences

_____b. interacted with the child in a variety of ways

_____c. watched the child

FEELINGS

Problems 89 to 98 are statements for you to complete. Please mark every statement by circling the letters that best represent how you feel about the statement.

Practice Item:

II. Human Sciences has been more interesting to me this year than last year's science course. SA A D SD

Draw a circle around the letter(s) that best expresses how you feel about the statement.

SA = Strongly Agree
A = Agree
D = Disagree
SD = Strongly Disagree

FEELINGS

Draw a circle around the letter(s) that best represents how you feel about each statement.

SA = Strongly Agree
A = Agree
D = Disagree
SD = Strongly Disagree

89. The questions I marked important in Evaluation Booklet 1 and 2 are good measures of what I learned in this module. SA A D SD

90. All of the questions together are a good measure of what can be learned from the activities in REPRODUCTION. SA A D SD

91. I worked with the same kids on most of the activities I completed in this module. SA A D SD

92. I worked by myself on most of the activities I completed in this module. SA A D SD

93. I feel that I learned important facts, ideas, or skills from the activities I completed. SA A D SD

94. I am learning to work more independently now compared to this time last year. My teacher doesn't have to check up on me very often. SA A D SD

95. This evaluation activity has helped show me how much I have learned from REPRODUCTION. SA A D SD

96. The evaluation activities in REPRODUCTION are more helpful than the evaluation activities in other modules this year. SA A D SD

97. It was easy for me to find activities I wanted to do in this module. SA A D SD

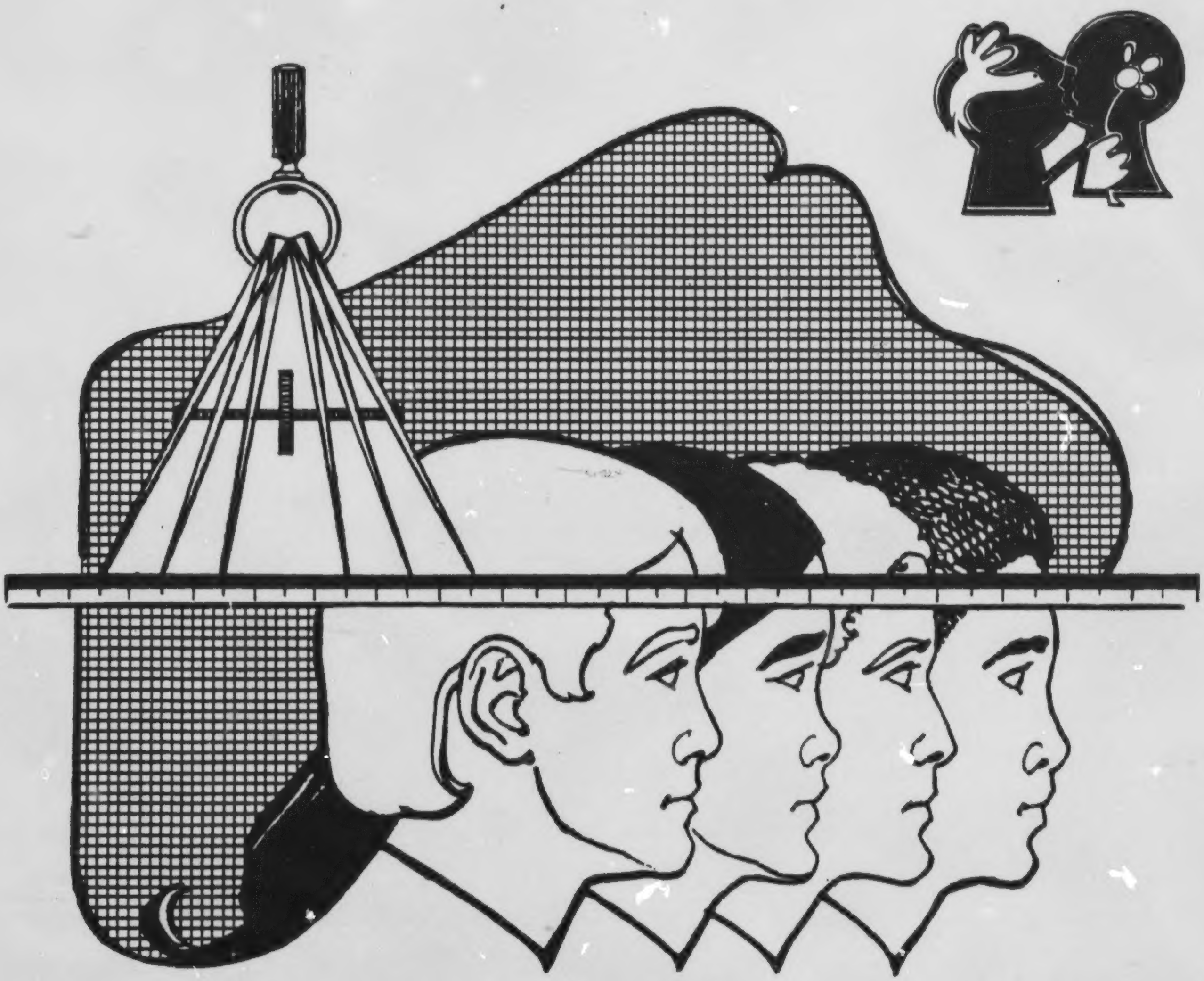
98. I would have completed more activities in this module if I had time. SA A D SD

EVALUATION SUMMARY BOOKLET

Name ______________________

Teacher ______________________

Date ______________________



Human Sciences Program REPRODUCTION Experimental Edition 1975 Biological Sciences Curriculum Study

EVALUATION SUMMARY WORK SHEET

This work sheet will help you put the results of your evaluation activities into a simpler form. You will change your evaluation scores into numbers. These numbers will be put onto easy-to-read scales.

You will need your Reproduction Report and your Evaluation Booklets to complete this work sheet. Your answers to the items should have been marked so that you can count the number of points you have for each section.

You will calculate scores to fill in on your Evaluation Profile Chart. Keep it handy as you work through the summary work sheet.

I. Opportunity to Learn Scales

How well did you use your time to learn? How many different activities did you do?

Scale A will rate how many activities you did.

Scale B will show how many activities you did carefully and thoughtfully.

Use your Reproduction Report to fill in the blanks below. Follow each step carefully.

Scale A

1. Total number of activities in REPRODUCTION a._____
2. Number of activities you completed b._____
3. Divide answer b by answer a $a\overline{)\,b\,}$ c._____
4. Multiply answer c by 10. __c__ x 10 d._____

Fill in Scale A of your Profile Chart with answer d.

Scale B

1. Number of activities done carefully and thoughtfully e._____

2. Divide answer e by answer b $b \overline{) e}$ f._____

3. Multiply answer f by 10 __f__ X 10 g._____

Fill in Scale B of your Profile Chart with answer g.

II. Learning Scales

How well did you answer the evaluation items about the activities? Did it matter if you thought an item was important or not important?

Scale C will let you rate the number of items you answered.

Scale D will show your success with all the items you answered.

Scale E will show your success with only the items you rated important.

Use your Evaluation Booklets from Days 1 and 2 to fill in the blanks below.

Scale C

1. Total number of Learning items h._____

2. Number of Learning items you answered i._____

3. Divide answer i by answer h $h \overline{) i}$ j._____

4. Multiply answer j by 10 __j__ X 10 k._____

Use answer k to fill in Scale C of your Profile Chart.

Scale D

1. Total possible points for items you answered l. ____
2. *Your* score for the items m. ____
3. Divide answer m by answer l $l\overline{)\,m\quad}$ n. ____
4. Multiply answer n by 10 $\underline{\quad n\quad}$ X 10 o. ____

Fill in Scale D of your Profile Chart with answer o.

Scale E

1. Number of items you answered and rated *important* p. ____
2. Total possible points on *only* the items you rated important q. ____
3. *Your* score on important items r. ____
4. Divide answer r by answer q $q\overline{)\,r\quad}$ s. ____
5. Multiply answer s by 10 $\underline{\quad s\quad}$ X 10 t. ____

Use answer t to fill in Scale E on your Profile Chart.

III. Skills I Developed Scale

How well did you learn to *do* things? Which of your skills did you improve?

Scale F rates the skills you used during REPRODUCTION. Use the Evaluation Booklet from Day 3 to fill in the blanks below.

Scale F

1. Number of skill items you answered u. ____
2. Number you answered by marking "a" ____ X 10 = v. ____
3. Number you answered by marking "b" ____ X 7 = w. ____

4. Number you answered by marking "c"
_____ X 5 = x._____

5. Add v + w + x = _____and divide the sum by t y._____

Fill in Scale F with answer y.

IV. How I Feel Scales

Some of the questions you marked show your feelings about the activities you have been doing.

Scale G shows how you feel about the evaluation in REPRODUCTION.

Scale H shows how you feel about the evaluation activities (not including the Summary Work Sheet).

Use the second section of the Evaluation Booklet For Day 3 to fill in the blanks below.

Scale G

Let SA = 4, A = 3, D = 2, and SD = 1.

1. Add up your score for questions 93, 97, and 98. z._____

2. Divide answer z by 3 to get an average.
_____ X 3 = _____. Multiply by 2.5. aa._____

Use answer aa to fill in Scale G on your Profile Chart.

Scale H

Let SA = 4, A = 3, D = 2, and SD = 1.

1. Add up your score for questions 89, 90, 95, and 96. bb._____

2. Divide by 4 to get the average _____.
Multiply by 2.5. cc._____

Use answer cc to fill in scale H on your Profile Chart.

When your Evaluation Profile Chart is completed you can begin the next section, "What Does It Mean?"

WHAT DOES IT MEAN?

Now you have completed your calculations and plotted your evaluation profile. What does it mean?

To evaluate is to judge. Judging, in this case, requires looking at evidence and deciding. Evaluation is a difficult task. This activity is designed to give you experience--practice--in learning to evaluate.

Look at Scale A. If you did all of the activities in the module what would your score be? Scale A gives you a measure of quantity (how much you did). It shows how many activities you did in relation to how many you could have done. Does "how many you did" tell you if you did good work or not? How will you decide? Would a good score for you be a good score for everyone? Why?

To help you with the problems above, look at Scale B. It is one measure of quality (how well you did). It shows the proportion of activities you think you did thoughtfully. Proportion in this problem means the relationship of activities you did thoughtfully to all the activities you did. For example, if your X on Scale B is at 5, you can think of the quality of your work as "I did 5 activities thoughtfully for every 10 activities I completed."

Now that you have a good idea of what Scale A and Scale B mean, answer this question: "How well did I use my opportunity to learn in this module?" Write down your answer. Use your scores on Scales A and B in your answer.

Answer:____

____

____

Scales C, D, and E also relate to the quality of your work. They do this in a more objective way than Scale B. Remember, in Scale B, you decided if you did activities thoughtfully. That kind of rating is known as a subjective rating.

Scale C shows you the proportion of items you answered. Try to complete this statement: "I answered _____ questions for every 10 questions in Evaluation Booklets 1 and 2."

Scale D represents your correct score on all the items you chose to answer. Write an explanation of your score on Scale D. Describe what the score means about what you learned.

Answer:____

____

____

Scale E gives you more information about the quality of learning as measured by the evaluation problems. It shows how well you answered questions you rated important. Should a person's scale score be higher on Scale D or Scale E?

Why?____

____

On which scale, D or E, was your score higher?______

Use your understanding of Scales C, D, and E to complete the following statement:

My scores on Scales C, D, and E show that I learned ______

____

____

Scale C shows the proportion of items you answered. Scale A shows the proportion of activities you did. How do these two scales compare? ________________________________

____

In the REPRODUCTION module you may have learned new ideas and information. You could have learned some new skills too. What does Scale F show about your skill-learning? ____________

____

____

Were you satisfied with activities in REPRODUCTION? Scale G represents your feelings about activities. What additional information can you provide? ________________________________

____

Scale H shows how you felt about the evaluation activities. How would you improve them? ________________________________

____

____

Now that you have completed this summary, how would your score be different from the score on Scale H. ________________

____

____

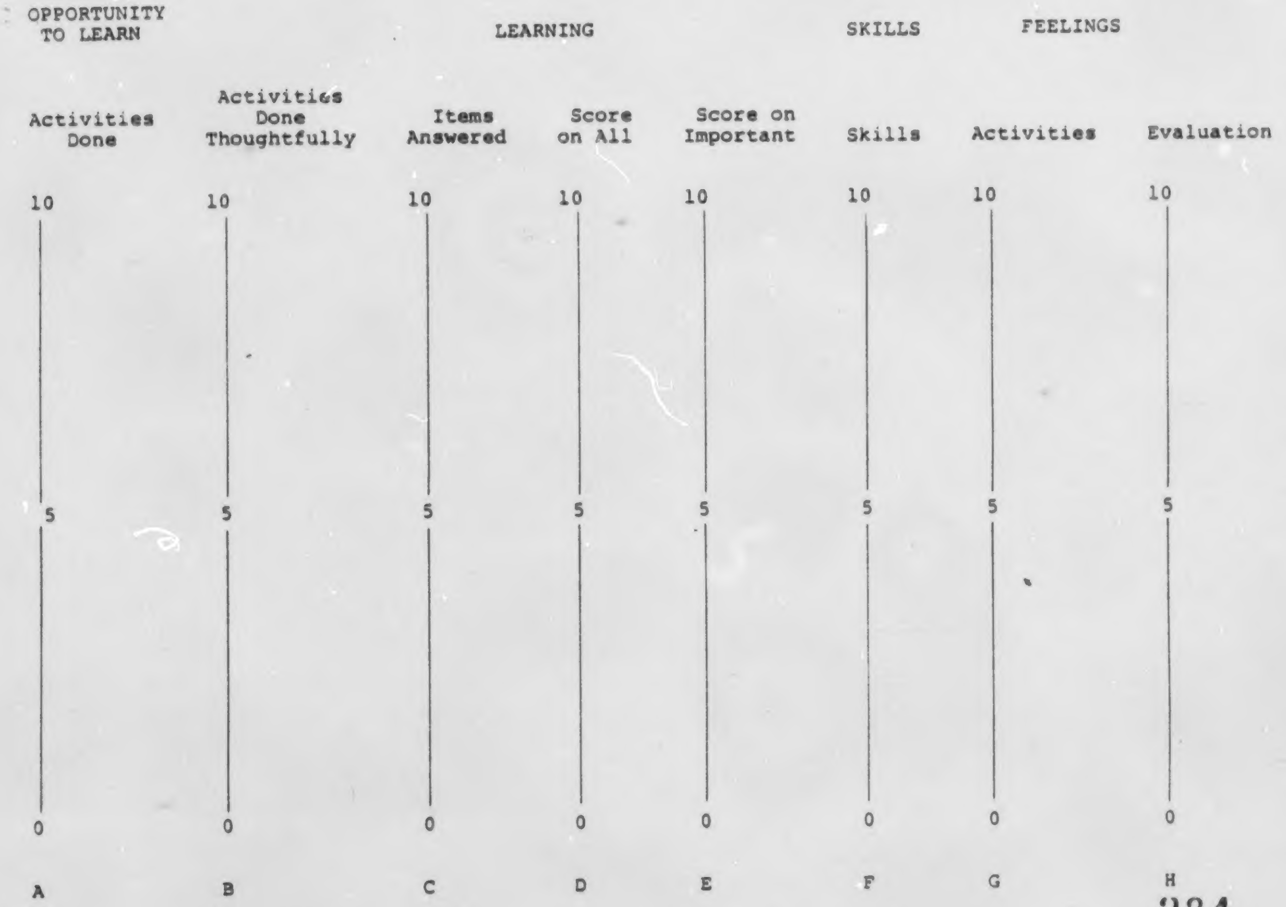
REPRODUCTION

Name ____________________
Teacher _________________
Date ____________________

EVALUATION PROFILE CHART

This chart has eight scales for recording and displaying your Evaluation Summary. Each scale represents a part of the evaluation activity. These scales should help you make judgments about the quantity and quality of your work.

Put an X on each of the scales for the numbers you calculated on your Evaluation Summary Work Sheet. Connect the X's with straight lines.


OPPORTUNITY TO LEARN
LEARNING
SKILLS
FEELINGS
Activities Done
Activities Done Thoughtfully
Items Answered
Score on All
Score on Important
Skills
Activities
Evaluation
10
5
0
A
B
C
D
E
F
G
H

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS   ERASE STRAY MARKS

Name ____________________
Teacher ____________________
Date ____________________

REPRODUCTION   FORM 1

Directions: Activity titles are listed by problem areas.

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

WHAT'S GOING ON INSIDE?

Multiple Births

Birth of a Baby

A Great Day for Medaka Fish

From Egg to Chicken

Why Unborn Babies Don't Get Hurt

From Fertilized Egg to Birth

Observing Pregnancy

Experiments with Seeds

Producing and Reproducing Plants	1 2 3 4 5
Sexual Reproduction in Flowering Plants	1 2 3 4 5
Putting It All Together	1 2 3 4 5
What's the Difference?	1 2 3 4 5
Am I Regular?	1 2 3 4 5

WHAT'S GOING ON BETWEEN ORGANISMS?

Dating: Then and Now	1 2 3 4 5
Arranged Marriages	1 2 3 4 5
My Ideal	1 2 3 4 5
Courtship among the Nacirema	1 2 3 4 5
Reproduction in the Year 2015	1 2 3 4 5
Mating Time	1 2 3 4 5
Nursing	1 2 3 4 5

300

UF 1080 OPTICAL SCANNING CORPORATION

MY ACTIVITY RECORD

DO NOT FOLD ANSWER SHEET OR DAMAGE EDGES

MAKE DARK MARKS   ERASE STRAY MARKS

Name ____________________

Teacher ____________________

Date ____________________

REPRODUCTION   FORM 2

Directions: Activity titles are listed by problem areas.

Mark 1 if you started the activity and finished it.
Mark 2 if you started the activity but didn't finish it.
Mark 3 if you didn't want to do the activity.
Mark 4 if you didn't have time to do the activity.
Mark 5 if you have not looked at the activity.

Watching Animals and Their Young

Caring for New Babies

HOW DOES REPRODUCTION AFFECT THE FAMILY?

Extended Family

Family Relationships

What Makes a Family?

Adopting a Child

Mother-Parent, Father-Parent

Baby Costs

→

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A Closer Look at Child Care	
Living with Birth Defects	1 2 3 4 5
Make-A-Toy	2 3 5
Learning to Be a Parent	1 2 4 5
How Many Children?	1 2 3 4 5
People and More People	3 4 5
Rabbit Island	3 4 5
Birth Certificates	3 4 5

INTEGRATIVE ACTIVITIES

Question Box

What's the Latest?

Debating Issues about Reproduction

REPRODUCTION

Evaluation Booklet 1, Coding Protocols

Col.	Item	Coding Protocol	Scoring
11-16	1.	1 = Embryo, hypocotyl, shoot, stem, sprout, leaves 2 = seed 3 = ovary 4 = leaves & food 5 = seed of egg 6 = pulp, root, shell, pollen 7 = not chosen	
	2.	1 = Cotelydon, stored food, food 2 = shell, outer shell, outer skin, seed, coat, outer covering, outer part 3 = embryo 4 = seed 5 = inside, inner shell, seed half 6 = bean, muscles, bladder, larva 7 = not chosen	
	3.	1 = Seed coat, shell, skin, coating, shell outer shell, shell outer skin 2 = seed 3 = membrane, outside, outside bladder, outer part 4 = stored food 5 = plastic coating 6 = larva 7 = not chosen	
	4.	1 = New plant, becomes a plant, grow-seedling, growing plant, makes a plant, birth of a plant, plant sprouts from base, the plant the bean has, plant which the leaves grow, makes plant grow, part that grows, grow a bean, grows another thing, helps seed to grow, embryo grows 2 = reproduces itself; egg breaks, out comes baby; reproduces the seed, reproduction 3 = grows into a seed 4 = keeps seed together, covers embryo 5 = feeds plant, stores food 6 = blank 7 = not chosen	

Col.	Item	Coding Protocol	Scoring
11-16	5.	1 = Food, fertilized embryo, feed embryo, stores the plant food, plants energy, feed it	
		2 = protects embryo, protects the plant, protects seed, protects it, protects the sprout	
		3 = growing, for growth, keeps seed alive	
		4 = reproduction	
		5 = blank	
		6 = forms baby, baby grows big, muscles empty it, hold the shoot, bean	
		7 = not chosen	
	6.	1 = Protection, holds it together, protects seed, protects seed & shoot, protects food & embryo, protects seed from damage, unintelligible	
		2 = makes it grow, grow	
		3 = blank	
		4 = blank	
		5 = (muscles embryo, root)*	
		6 = to eat, seal it, in your bladder body becomes real thing	
		7 = not chosen	
17	7.	1 = a.	
		2 = b.	
		3 = c.	
		4 = d.	
		7 = not chosen	
18	8.	1 = a.	
		2 = b.	
		3 = c.	
		4 = d.	
		7 = not chosen	
19	9.	1 = a.	
		2 = b.	
		3 = c.	
		7 = not chosen	

* uncertain if coded properly

Col.	Item	Coding Protocol	Scoring
20, 21 & 22	10. (1st stage)	1 = Uterine muscles contract, contracting, labor pains, pulling & pushing, woman has contractions, contraction 2 = fertilization, sperm fertilizes egg, cells meet, sperm joins egg 3 = water breaks 4 = the baby comes out, baby is born, baby comes feet first 5 = sex, sexual intercourse 6 = incorrect response, response out of sequence, no response 7 = not chosen	
	(2nd stage)	1 = cervix opens, water breaks, muscles expand, dilation 2 = embryo grows, goes to womb, embryo goes to uterus 3 = baby is pushed out, labor pains 4 = the cord is cut, after birth, placenta is pushed out 5 = egg and sperm join, fertilization 6 = response out of sequence 7 = not chosen	
	(3rd stage)	1 = after birth, placenta is pushed out, cord is cut, baby born 2 = the mother will get pains 3 = afterbirth is pushed out, placenta is pushed out, cord is cut, baby is born 4 = baby is cleaned 5 = baby starts to grow 6 = response out of sequence 7 = not chosen	
23-28	11.	1 = M. 2 = H. 3 = B. 4 = N. 5 = blank 6 = multiple 7 = not chosen	
	12.	1 = M. 2 = H. 3 = B. 4 = N. 5 = blank 6 = multiple 7 = not chosen	

Col.	Item	Coding Protocol	Scoring
23-28 (cont.)	13.	1 = M. 2 = H. 3 = B. 4 = N. 5 = blank 6 = multiple 7 = not chosen	
	14.	1 = M. 2 = H. 3 = B. 4 = N. 5 = blank 6 = multiple 7 = not chosen	
	15.	1 = M. 2 = H. 3 = B. 4 = N. 5 = blank 6 = multiple 7 = not chosen	
	16.	1 = M. 2 = H. 3 = B. 4 = N. 5 = blank 6 = multiple 7 = not chosen	
29 & 30	17. (Yes/No)	1 = Yes, stated 2 = No, stated 3 = Yes, implied 4 = No, implied 5 = Yes and No (stated or implied) 6 = Yes or No, not stated or implied 7 = not chosen	
	(Reason)	1 = Cognitive only 2 = Affective only 3 = Both cognitive and affective 4 = blank 5 = reason does not logically follow 6 = no reason given 7 = not chosen	
31	18.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = blank 7 = not chosen	

Col.	Item	Coding Protocol	Scoring
32	19.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = blank 7 = not chosen	
33	20.	1 = One correct condition, at least 2 = Correct fact or facts, but no conditions 3 = Incorrect fact or statement 4 = Correct general statement, but misses question 5 = Chicks and baby don't have any conditions in common 6 = not codable, can't be categorized 1-5 7 = not chosen	
34 & 35	21.	1 = drawing must show development, at least embryonic plate on yolk (2-4 blank) 5 = not in a series 6 = uncodable, no detail 7 = not chosen	
	22.	1 = drawing must show some detail beyond embryonic plate, but not a fully developed chick (2-4 blank) 5 = not in a series 6 = uncodable, no detail 7 = not chosen	
36	(not used)		
37	23.	1 = Some with (embryo alone), and some complete seeds 2 = Some with (embryos alone), no control 3 = Specific but incorrect directions, or experiment won't yield answer to problem 4 = Idea of planting different seed parts, but not precise enough to follow (continued)	

Col.	Item	Coding Protocol	Scoring
37 (cont.)	23 (cont.)	5 = No specific directions, missed point of question, look it up at the library 6 = not understandable, or I tried it and it won't work. Not codable. 7 = not chosen	
38	24.	1 = General response including two ways a. pollen from male part is transferred to female part which produces seeds b. by cuttings, cut off a branch or shoot, put in damp soil, it will grow 2 = General response including two ways, concepts not appropriately bounded; or, no evidence of concept attainment 3 = General or specific response, one way, either a. how seeds are produced, or b. how cuttings are made; evidence that some concepts are appropriately bounded 4 = General or specific response, one way, either a. how seeds are produced, or b. how cuttings are made; concepts not appropriately bounded, or no evidence 5 = Simple response with key terms: pollen, male/female, flower, seed, embryo, pollinate, leaf cuttings, slip; concepts not appropriately bounded or no evidence 6 = Simple response without key terms; response unrelated to question, faulty logic 7 = not chosen	
39	25.	1 = a. 2 = b. 3 = c. 4 = d. 7 = not chosen	
40	26.	1 = Two advantages of either bottle or breast feeding: **Bottle** You can throw it away, both parents can spend time, felt more comfortable--modesty, schedule easier to set up	

(continued)

Col.	Item	Coding Protocol	Scoring
40 (cont.)	26. (cont.)	1 = (continued)	
		Breast	
		Personal satisfaction--togetherness and security; no money, no costs; convenience, no bottles; immunity factors (colostrum)	
		2 = One advantage (as above) or mixed, one correct advantage and assertions inaccurate; or one advantage of breast feeding and one of bottle feeding	
		3 = Mixed--advantages and disadvantages	
		4 = Reversal--disadvantages of one or both methods	
		5 = Assertions or statements without evidence	
		6 = uncodable	
		7 = not chosen	
41- 48	27. (Parts)	1 = placenta	
		2 = blood bed	
		(3 & 4 blank)	
		5 = uncodable	
		6 = no response	
		7 = not chosen	
	28.	1 = umbilical cord	
		2 = cord	
		3 = blank	
		4 = belly button	
		5 = uncodable	
		6 = no response	
		7 = not chosen	
	29.	1 = amnion/amnion sac	
		2 = bag	
		3 = uterus	
		4 = blank	
		5 = uncodable	
		6 = no response	
		7 = not chosen	

(continued)

Col.	Item	Coding Protocol	Scoring
41- 48 (cont.)	30. (Parts cont.)	1 = amniotic fluid 2 = water/fluid (3 & 4 blank) 5 = uncodable 6 = no response 7 = not chosen	
	31. (Function)	1 = exchange of materials between mother/ baby--blood 2 = provides nourishment/food/air/wastes 3 = exchange blood 4 = blank 5 = uncodable 6 = no response 7 = not chosen	
	32.	1 = food/oxygen to baby 2 = food to baby (3 & 4 blank) 5 = uncodable 6 = no response 7 = not chosen	
	33.	1 = protection/keep safe (2-4 blank) 5 = uncodable 6 = no response 7 = not chosen	
	34.	1 = protection/keep safe (2-4 blank) 5 = uncodable 6 = no response 7 = not chosen	
49	35.	1 = a. 2 = b. 3 = c. 4 = d. 7 = not chosen	

Col.	Item	Coding Protocol	Scoring
50	36.	1 = a. 7 = not chosen 2 = b. 3 = c. 4 = d.	
51	37.	1 = At least two specific correct identified events a. cord is cut b. baby is cleaned/washed/bathed c. baby is slapped/slapped on the tail/ smacked/get him breathing/make sure lungs aren't clogged d. gets a bracelet 2 = One specific correctly-identified event 3 = Later events that happen a. fed b. put in incubator c. diapered d. baby eats & sleeps 4 = Mix of accurate and inaccurate statements or misinterpretations 5 = Folktales: let blood run to its head 6 = uncodable; or general expression/cared for, nothing 7 = not chosen	
52	38.	1 = Positive or neutral affect 2 = Positive or neutral cognition 3 = Positive or neutral mixed 4 = Negative affect 5 = Negative cognition 6 = Negative mixed 7 = not chosen	

REPRODUCTION

Evaluation Booklet 2, Coding Protocols

Col.	Item	Coding Protocol	Scoring
11- 16	39.	1 = pollen, male	
		2 = reproduces	
		3 = fertilizes	
		4 = blank	
		5 = misc. plant parts	
		6 = multiple marks, or no response	
		7 = not chosen	
	40.	1 = pollen sac/stamen	
		(2 & 3 blank).	
		4 = keep plant alive	
		5 = misc. plant parts	
		6 = multiple marks, or no response	
		7 = not chosen	
	41.	1 = pistil	
		(2-4 blank)	
		5 = misc. plant parts	
		6 = multiple marks	
		7 = not chosen	
	42.	1 = fertilizes & pollinates flower, fertilization	
		2 = reproduce, more plants, makes more flowers	
		3 = fertilizes seeds	
		4 = seed product	
		5 = incorrect function	
		6 = multiple marks, or no response	
		7 = not chosen	
	43.	1 = produces pollen	
		2 = reproduce	
		3 = blank	
		4 = holds pollen, keeps pollen	
		5 = incorrect function	
		6 = multiple marks, or no response	
		7 = not chosen	

Col.	Item	Coding Protocol	Scoring
11-16 (cont.)	44.	1 = catches pollen, carries seed, protect seed, produce seeds, egg-producing ovary 2 = blank 3 = misc. plant parts 4 = helps growth 5 = incorrect function 6 = multiple marks, or no response 7 = not chosen	
17	45.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = multiple marks 7 = not chosen	
18	46.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = multiple marks 7 = not chosen	
19	47.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = multiple marks 7 = not chosen	
	48. (omitted - cannot be coded)		
20-25	49.-51. (Male)	1 = Observable external sex characteristics (accurate), e.g. penis, testicles, larger horns, male sex organs, larger body, stronger, special coloration, mane, different role/group, antlers, larger hoofs, dominant, horns different shape, no breasts, more difficult to tame, loud (harsh) voice, doesn't work, large comb 2 = Stereotyped (inaccurate), e.g. horns, leader of pack, stronger voice, always in fights, toughy, brave	

(continued)

Col.	Item	Coding Protocol	Scoring
20-25 (cont.)	49.-51. (Male) (cont.)	3 = Sex organs or parts not observable from outside, e.g. sperm	
		4 = Inferences, e.g. different organs, glands, place to drop out, lazy, can't have young, pelvis, fertilizes	
		5 = Unrelated responses, response included in another, feature is same with both sexes, human areas	
		6 = no response	
		7 = not chosen	
	52.-54. (Female)	1 = Observable external sex characteristics (accurate), e.g. breasts, udder, feeding glands, no antlers, works, smaller hoofs, less dominant, gives birth, no large comb	
		2 = Stereotyped (inaccurate), e.g. horns, mane, part of harem, weaker voice, mother, protection of young, swifter in movements	
		3 = Sex organs not observable from outside, e.g. ovary, uterus, oviduct, vagina, embryo	
		4 = Inferences, e.g. different organs, glands, place in her to drop egg, smaller body, softer voice, testicles (where scrotum is also given), pelvis, hunters, ability to have young, lays eggs, looks for place to have kittens	
		5 = Unrelated responses, response includes another, feature is same for both sexes (anus)	
		6 = no response	
		7 = not chosen	
26	55.	1 = Two different categories of need a. love, care, attention, affection, kindness, happiness, trust, peace within, consideration, respect, care, warmth, togetherness, strength, honesty, companionship, support, friendship b. food, milk c. clothing, diapers d. shelter, protection, safety, home, help them live e. guidance, discipline, strictness, security, help, understanding, responsibility, approval, patience, leading, teach right and wrong, fairness, correction, help in learning f. time	

(continued)

Col.	Item	Coding Protocol	Scoring
26	55. (cont.)	2 = One category of the above; may include inappropriate responses such as money, schooling 3 = Material things 4 = Physical attractiveness 5 = blank 6 = unrelated responses 7 = not chosen	
27	56.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = multiple marks 7 = not chosen	
28	57.	1 = Contrast between fertilized and non-fertilized egg that is correct as far as it goes, but incomplete. Referent is restricted to baby, chick, or is restricted by lack of elaboration 2 = Contrast between fertile and non-fertile egg including inaccurate terms, referents, or relations 3 = Partial response, dealing with only fertile egg or non-fertile egg, or provides an incomplete though accurate distinction 4 = Partial response dealing with fertile or non-fertile egg with inaccurate terms, referents, or relations 5 = Generalized response, contrasts fertile and non-fertile correctly and includes specific animals, plants, or more than an animal or plant. 6 = uncodable 7 = not chosen	
	58. & 59	(omitted)	
29	60.	1 = Three correct requirements, no incorrect - food, protection, moisture, water, air, oxygen, warmth 2 = One or two correct requirements, no incorrect (but more non-credited responses, such as: a plan to grow). 3 = Requirements specific to a plant or an animal, e.g. fertilizer, get food and care	

Col.	Item	Coding Protocol	Scoring
29 (cont.)	60. (cont.)	4 = Two or three correct requirements imbedded with incorrect 5 = plants don't need to be kept warm, animals don't need much water, one grows in dirt and one grows inside animals 6 = uncodable, incorrect, off question, don't know, to be fertilized, one correct and one incorrect 7 = not chosen	
30	61.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = multiple marks 7 = not chosen	
31	62.	1 = a. 2 = b. 3 = c. 4 = d. 5 = e. 6 = multiple marks 7 = not chosen	
32	63.	1 = Items in time phase, at least two substances, sentences with complete thoughts: listen to radio, dance, movie, ride in car, soda parlor, roller skating, parent along (chaperone) 2 = Items in time phase, one substantive sentence 3 = Items in time phase, no sentences--lists 4 = Out of time phase, responses include items for new or old--watch TV, ride in horse and buggy, pizza parlor 5 = Exaggeration, e.g. nothing, sat and looked at each other, not a thing, put an ad in the paper, do homework 6 = Same as now, same things we did today, not much 7 = not chosen	

Col.	Item	Coding Protocol	Scoring
33- 38	64. (Parts)	1 = Ovary (female) Testes (male) (2-5 blank) 6 = no response 7 = not chosen	
	65.	1 = Uterus (female) Scrotum (male) (2-5 blank) 6 = no response 7 = not chosen	
	66.	1 = Ovum/egg, oviduct (female) Sperm, urethra, sperm duct (male) (2-5 blank) 6 = no response 7 = not chosen	
	67. (Function)	1 = Produces eggs (female) Produces sperm (male) 2 = Stores eggs (female) Stores sperm (male) (3-5 blank) 6 = no response 7 = not chosen	
	68.	1 = Protect fertilized egg (female/protect testes, male) (2-5 blank) 6 = no response 7 = not chosen	
	69.	1 = When fertilized egg becomes baby, when baby is first developing, passage for egg (female) Passage for sperm and urine, carries sperm (male) (2-5 blank) 6 = no response 7 = not chosen	
39- 42	70.	1 = H. 2 = A. 3 = N. 4 = M. (5&6 blank) 7 = not chosen	

(continued)

Col.	Item	Coding Protocol		Scoring
39- 42 (cont.)	71.	1 = H. 2 = A. 3 = N. 4 = M.	(5&6 blank) 7 = not chosen	
	72.	1 = H. 2 = A. 3 = N. 4 = M.	(5&6 blank) 7 = not chosen	
	73.	1 = H. 2 = A. 3 = N. 4 = M.	(5&6 blank) 7 = not chosen	
43	74.	1 = 5 correct relations, no extraneous or incorrect responses (mother-father; father-paternal mother; father-12 yr. old; pat. grandmother-12 yr. old; 17 yr. old-8 yr. old) 2 = 3-4 correct relations, no incorrect 3 = 1-2 correct relations, no incorrect 4 = mixed, close relations, and/or irrelevant description, and/or error 5 = response logically related to question 6 = incorrect relations 7 = not chosen		
44	75.	1 = Two of three categories properly represented in responses. Categories are: a. proof of age, to start school, get license b. proof of citizenship, passports, military c. proof of relationship 2 = one category (above) represented 3 = at birth, when baby is born, when you have a baby 4 = single or multiple common sense, e.g. job application, to join something, to record birth, identification, school registration, after birth, to go to jail		

(continued)

Col.	Item	Coding Protocol	Scoring
44 (cont.)	75. (cont.)	5 = oblique responses, e.g. my father needs them, when you join something	
		6 = blank	
		7 = not chosen (includes "I don't know)	

REPRODUCTION

Evaluation Booklet 3, Coding Protocols

Col.	Item						
11	76	A=1	B=2	C=3	4-5 OMIT	6=no response	7=Not chosen
12	77						
13	78						
14	79						
15	80						
16	81						
17	82						
18	83						
19	84						
20	85						
21	86						
22	87						
23	88						

Col.	Item						
24	89	SA=1	A=2	D=3	SD=4	(5-6 OMIT)	7=Not chosen
25	90						
26	91						
27	92						
28	93						
29	94						
30	95						
31	96						
32	97						
33	98						

Level III, 1975-76

Description of the Evaluation Materials

Four modules, CHANGE, FEELING FIT, INVENTION, and SURROUNDINGS, were field tested in eighth grade classes during the academic year 1975-76.

The Level III evaluation materials include reproduction of teachers guide material about evaluation, student guides to evaluation activities, activity record data forms, evaluation items of various types, and questionnaires and self-rating forms. The only materials not included are copies of the folders in which students recorded data of beginning and completing activities. Data from the folders were gathered in the "My Activity Record" form for each module, which are included here.

Coding protocols for free response and essay problems and keys to problems are included if such items were produced.

Two end-of-year instruments were administered in May, 1976 to students in test classes. "How Is Your Logic?" is reproduced here, but the scoring manual is not. This manual is copyrighted by William M. Gray, Department of Educational Psychology, University of Toledo, Toledo, Ohio, and may be obtained from him. The "Science Questionnaire" was also administered to students in May, 1976.

A fifth Level III module, KNOWING, was developed in 1976, produced and field tested in the spring, 1977, with a different group of eighth grade students, and with both experienced and inexperienced Human Sciences teachers. Evaluation procedures and instruments used in the field test of KNOWING, conclude this publication.

FACILITATING SELF-EVALUATION

INTRODUCTION

Helping students develop skills in self-evaluation is an important goal of the Human Sciences Program. Your role is critical to the attainment of this goal. Your daily interactions with your students communicate your evaluative criteria to them. Helping students to develop criteria for evaluating their products, their explanations, and their reasoning is best done by engaging them in all facets of evaluation. Evaluation is also a public process; students need to develop skills in constructing, analyzing, and criticizing a range of evaluative tools and practices.

EVALUATION PERIODS

The Level III evaluation program will consist of continuous evaluation activities that are part of everyday classroom procedures and formal evaluation periods. Four modules are planned for Level III. Each module will have three problem areas. A formal evaluation period will be scheduled at the completion of each problem area. This results in 12 evaluation periods for the year.

EVALUATION MATERIALS

The following materials are provided for evaluation of CHANGE. Instructions for student use of these materials are in "Student Guide to Change, A Level III Human Sciences Module." Suggestions for your use of these materials will follow in subsequent sections of this guide. You may wish to supplement these evaluation materials with those of your own design. All of these materials are designed to help you help students develop competence in self-evaluation.

Evaluation Materials and Time of Use

Title	Brief Description	Timing
Change Record	(One per student.) This folder lists activity titles by problem areas and asks key questions about activities.	Daily, all three evaluation periods
Student Guide to CHANGE	(One per student.) A booklet that presents an introduction and module overview, and instructions chart evaluation.	First to third class period All three evaluation periods
Problems to Solve	(One per student per problem area.) This is a booklet containing all of the formal evaluation problems for an evaluation period. It should be distributed only at an evaluation period.	Evaluation period, Day 1 and day 2
My Activity Record--Objective Problems	(One per student.) This is a machine scorable form to send data to the Human Sciences Project.	Evaluation period, Day 1
Choose Your Problem Work Sheet	(One pad per class.) These are for student responses. They are printed on white and yellow NCR paper. Copy 1 is to be retained for class use. Copy 2 is to be mailed to the Human Sciences Project.	Evaluation period, Day 1
Mapping My Progress in Human Sciences	(One per student.) This folder is for each student to chart and reflect on his or her progress for the entire year.	Evaluation period, Day 2
Mailer	(Three.) A mailer is provided to return copies of My Activity Record, Objective Problems, and Choose Your Problem Work Sheets to the Human Sciences Project.	Evaluation period, Day 2

EVALUATION DESIGN FOR CHANGE

The evaluation procedures and materials for CHANGE are designed to provide students with products that can be used for self-evaluation and as a data base for you and the students to make judgments about grades. Both objective and subjective data are included in this data base.

The basic issue you and your students must resolve is whether evaluation must result in a single grade or can be descriptive of accomplishments. If a single grade is to be derived, a decision must be made as to whether the grade will be referenced to individual growth and development or will be normative, based on comparisons of each student's work with the norms of the class group or some other reference group. The evaluation materials for CHANGE may be used in any of these contexts, but the use will differ in each. Both you and your students need to have the same defined point of view about the basis for the kinds of evaluation data to be used and the uses to which these data will be put.

The next question to be resolved, and it may only be resolved empirically, is the tension between quality and quantity. How can these two dimensions of everything you and your students do in class be determined? These two questions will be discussed in relation to each item in the evaluation materials. Figure 1 shows the relationships of the different evaluation materials to determining the quality and quantity of student accomplishments.

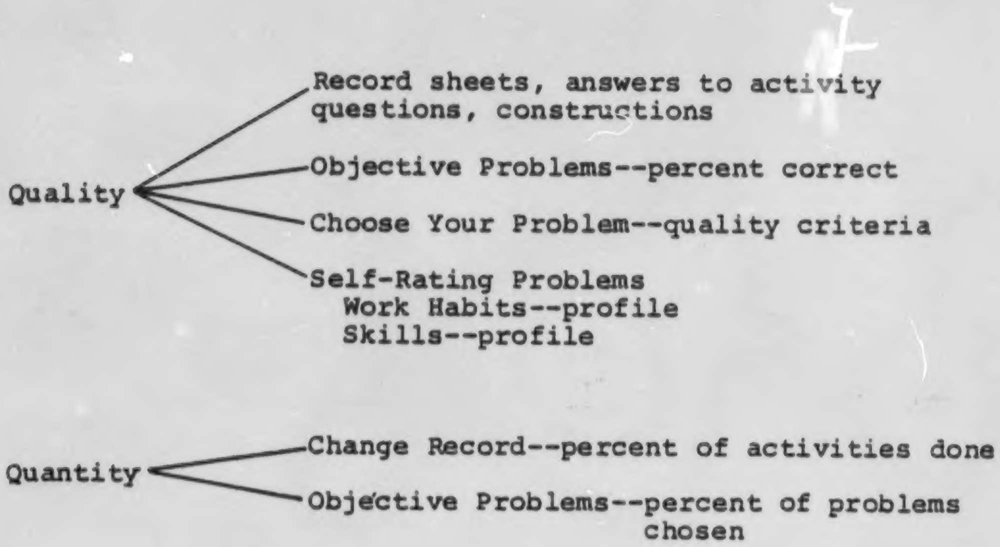

Quality
Record sheets, answers to activity questions, constructions
Objective Problems--percent correct
Choose Your Problem--quality criteria
Self-Rating Problems
Work Habits--profile
Skills--profile
Quantity
Change Record--percent of activities done
Objective Problems--percent of problems chosen

Figure 1. Schematic relations of evaluation data to quality and quantity.

Mechanics of Each Evaluation Period

Day 1

All evaluation materials are specific to a problem area and evaluation period. Be sure to use the appropriate materials for each evaluation period.

Distribute the "My Activity Record" forms. These forms will be machine processed, so please encourage students not to bend the forms or make any unnecessary marks on them. Students should have their Change Records. Have students fill in their name, etc. at the top of the form. Students should mark each activity according to the instructions. Circulate to be sure that students have a response for each activity. When students have completed the "My Activity Record" side of the form, ask them to put away their Change Records.

Distribute the "Problems to Solve" booklet. Review the instructions in the book with the class. Students will mark their answers in the booklet before they transfer their answers to the Objective Problem side of the machine-scored form. Transferring answers marked in the booklets to the machine-scored Objective Problems form may seem tedious to students. Help them understand the need for accurate data from their test class for the Human Sciences Project.

If time permits, students may go on to "Choose Your Problem." They will need the "Choose Your Problem Work Sheets" printed on NCR Forms for their responses to the problem they choose. Collect Copy 2 of the "Choose Your Problem Work Sheets" to be mailed to the Human Sciences Project.

The last section "Problems to Solve," "Self-Rating Problems," may be done on Day 1 or delayed until Day 2.

Day 2

Complete any problems as yet undone in "Problems to Solve."

Distribute "Mapping My Progress in Human Sciences, Level III." This booklet will be used throughout the entire year. You and your students will need to plan for storing these booklets between evaluation periods.

The purpose of this booklet is to display data for each student for each of the 12 evaluation periods during the year. It also provides for students interpretations of what the data mean during the last evaluation period of each module.

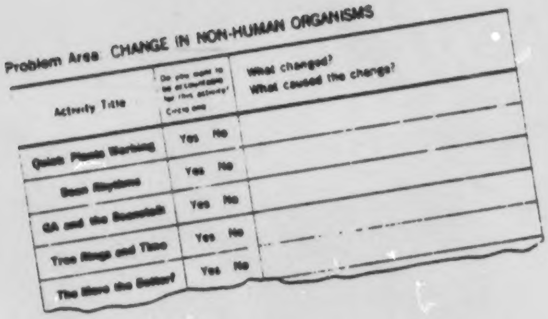
Grading policies that you and your students develop can be added to the booklet along with procedures and calculations of grades. The long-term goal of evaluation is to produce a record and interpretation of growth throughout the year.

EVALUATION MATERIALS AND THEIR USES

CHANGE RECORD

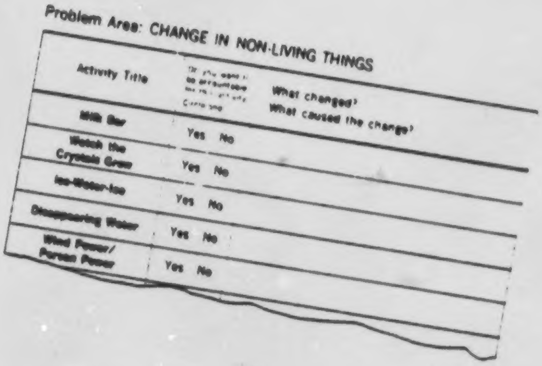
The Change Record has two kinds of questions for students to address for each activity as shown below.

Problem Areas: Change in Non-human Organisms, Change in Non-living Things



Problem Area: CHANGE IN NON-HUMAN ORGANISMS

Activity Title	Do you want to be accountable for this activity? Circle one	What changed? What caused the change?
Quick Plants Working	Yes No	
Bean Rhythms	Yes No	
GA and the Beanstalk	Yes No	
Tree Rings and Time	Yes No	
The More the Better?	Yes No	



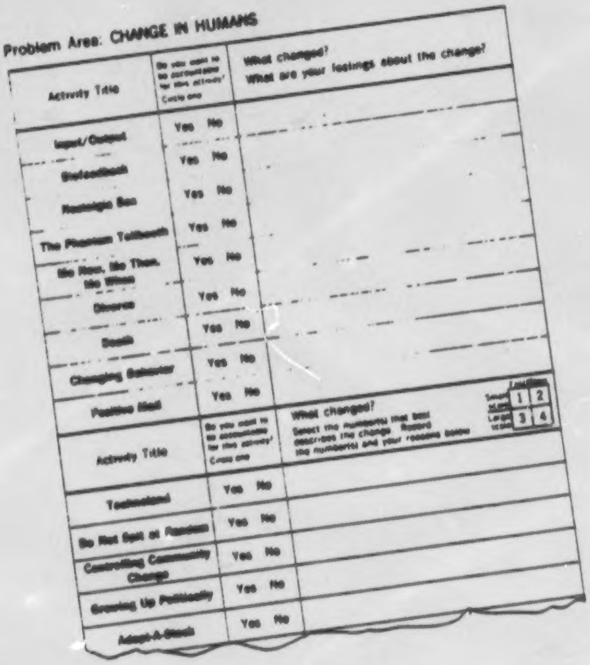
Problem Area: CHANGE IN NON-LIVING THINGS

Activity Title	Do you want to be accountable for this activity? Circle one	What changed? What caused the change?
Milk Bar	Yes No	
Watch the Crystals Grow	Yes No	
Ice-Water-Ice	Yes No	
Disappearing Water	Yes No	
Wind Power/ Person Power	Yes No	

The first question deals with whether the student "did" an activity or not. The concept of accountability is introduced in the "Student Guide to CHANGE." Having "done" an activity can be accomplished in many ways. A student may have learned from the activity by being the object of study instead of having conducted it. Responding YES does not mean the student completed every part of an activity. It does mean that he or she has done a major part of the activity, not including extensions. When students complete an activity to their satisfaction they should circle YES and then answer the questions in the right-hand column. Use their responses to these questions to interact with students. You and the student will both gain experience in the oral dimension of quality of learning. Here are questions you might ask.

- What other changes could have occurred in the activity? How do you know they didn't change?
- Could there have been causes in addition to __________?
- How could you tell that __________ was the cause?

In the problem area, Change in Humans, questions are different for the two activity clusters.



Problem Area: CHANGE IN HUMANS

Activity Title	Do you want to be accountable for this activity? Circle one	What changed? What are your feelings about the change?
Input/Output	Yes No	
Biofeedback	Yes No	
Nostalgia Box	Yes No	
The Phantom Tollbooth	Yes No	
No Now, No Then, No When	Yes No	
Divorce	Yes No	
Death	Yes No	
Changing Behavior	Yes No	
Positive Mail	Yes No	

Activity Title	Do you want to be accountable for this activity? Circle one	What changed? Select the number(s) that best describes the change. Record the number(s) and your reasons below.
Technoland	Yes No	
Do Not Spit at Random	Yes No	
Controlling Community Change	Yes No	
Growing Up Politically	Yes No	
Adopt-A-Block	Yes No	

In discussing feelings, clarifying the underlying values may be helpful. The goal is not to obtain data, but for the student to clarify his or her response to the problem. Questions such as "What do you mean by that?" "Did you consider any alternatives?" "Why did you choose the activity?" "How did it (meet/fail to meet) your expectations?"

Use. The Change Record will be used daily and during part, but not all, of Day 1 of each evaluation period.

STUDENT GUIDE TO CHANGE, A LEVEL III HUMAN SCIENCES MODULE

This booklet is designed to provide students with information about the organization of CHANGE and about procedures for evaluation. The booklet may be used with small groups as the need for the information arises, as an all-class activity for a change of pace from individual work, or in other ways you may devise.

Students will need to understand the evaluation materials and proceudres prior to the first evaluation period.

This booklet may help parents understand Human Sciences, Level III. You might suggest that students take the booklet home and discuss it with their parents.

PROBLEMS TO SOLVE

These are test booklets to be used at each evaluation period. Schedule the first evaluation period when students have completed the long-range activities begun in _Change in Non-human Organisms_. This period may be some time after you have moved into a new problem area. It may be scheduled close to the second evaluation period.

Use. Only at Evaluation Periods.

Each "Problems to Solve" booklet has three sections: Objective Problems, Choose Your Problem, and Self-Rating Problems. There are three Problems to Solve booklets for CHANGE, one to be used with each problem area.

Objective Problems. There are 15 objective problems in each booklet. They relate to the activities in the problem area. However, the problems in the last booklet for a module may be about activities from all problem areas. Students choose the items they can answer. Their goal should be to choose as many as they can answer correctly.

Answers and reasons for choosing the answer are to be written on "Problems to Solve." This will be the students' and your record. Answers and reasons will also need to be written on the back of the machine-scored form, "My Activity Record."

Two scores will be computed from Objective Problems: percentage of items chosen and percentage of chosen items correct (see "Mapping my Progress in Human Sciences, Level III").

The percent correct of problems chosen can be used independently or in conjunction with "reasons." The reasons are clinical-type data. Asking for reasons helps distinguish between guessing and understanding. An effective reason will explain why the student's choice was made instead of the alternative choices. If you wish to score reasons, you can use the following scale.

0 = reiteration, reiterating the choice itself, but not a distinct reason.

1 = a partial explanation, brings some support for the choice, but not enough to distinguish it from other possible choices.

2 = a statement that clearly supports the choice or explains why the alternatives are not correct.

If you wish, percentage of reasons for choice can be plotted on the Objective Problems graph in "Mapping My Progress in Human Sciences, Level III."

Choose Your Problem. These open-ended problems in which students construct a complete response provide for divergent thinking, as compared to the convergent solution of objective items. Such problems enable students to practice recall, selection, organization, and presentation of ideas in writing. Students have to decide what facts and relations are relevant to a problem. This kind of problem requires the use of different mental operations than recognizing another person's formulations, as in objective items.

These are several kinds of criteria you may use in judging responses to "Choose Your Problem."

1. For students with limited skills you might use this criteria:
    a. was the response directly related to the question?
    b. was the response understandable?
    c. were all parts of the question responded to in the answer?
2. For students with well-developed skills:
    a. were the ideas clearly expressed?
    b. were relevant data, evidence, etc., included in the response?
    c. were peripheral facts excluded?
    d. were relationships accurately portrayed?
    e. were concepts used accurately?

Improvement in responses to "Choose Your Problem" will develop slowly. Comparisons in the first and third evaluation periods will be helpful. A judgmental letter grade or percentage grade could be assigned for the three "Choose Your Problem" responses at the completion of the module.

Self-Rating Scale. This scale is designed to provide for self-judgment (the students) and external judgment (yours) regarding the students work habits and skills and attitudes. After the student plots his or her own response on the scale, it should be turned in so that you can make your responses. Discussions with students about any differences in perception should be directed toward clarifying criteria for judgments made.

The Self-Rating Scale should be stapled on the back cover of the "Mapping My Progress in Human Sciences, Level III." In this way, comparisons for a module, and throughout the year can be made.

The "Problems to Solve" booklets for each evaluation period will be found in the section of this guide dealing with each problem area.

MAPPING MY PROGRESS IN HUMAN SCIENCES, LEVEL III

This booklet provides graphs to plot scores for the four modules of Level III. Each module will have three evaluation periods. The graphs provide room to plot scores for the 12 evaluation periods.

If you design special sheets for grade computations at required grading periods, these sheets can also be kept in this booklet. The booklet can be used in parent conferences, too.

You should probably store the booklets in the classroom between evaluation periods. They could be taken home to show parents at the completion of each module.

STUDENT GUIDE TO CHANGE

A Level III
Human Sciences Module

Experimental Edition 1975
Human Sciences Project
320

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INTRODUCTION

Welcome to Human Sciences. Human Sciences is a way of learning that might be new to you. This new way of learning needs new ways of evaluation and different ways to determine your grade.

This booklet introduces you to the new Human Sciences module, CHANGE. It also explains some of the things you will be doing during the evaluation periods for CHANGE.

Each Human Sciences module has many different kinds of activities. You can choose activities to do according to your own interest, skills, and talents. You don't have to choose things you have already done before.

Since you will be doing different activities than your classmates, it is important for you to keep accurate records of which activities you have done, and what you have learned. You will also have to choose evaluation activities that show the best work you can do. This is one meaning of accountability. The records you keep will be an important part of the data to be used in determining your Human Sciences grade.

Find the activities that are interesting to you. Learn all you can from them. Compare the activities you do with those your classmates do. Explain your thoughts to others--students, parents, friends. Putting your experiences into your own words is an important part of learning.

THE CHANGE MODULE

As the title suggests, this module is about the causes and effects of many different kinds of change. As you work on the activities, you will need to think about the cause or causes of the change. Is there just one cause for the change or are there several causes?

The module is divided into three problem areas: Change in Non-human Organisms, Change in Humans, and Change in Non-living Things. Each problem area contains groups of activities called clusters. Each cluster of activities is about a certain type of organism or certain type of change.

Three skills booklets are included in the CHANGE module to help you with technical problems. These are "Making and Using Graphs," "Working with Fruit Flies," and "Seeing Small Things."

There are four integrative activities for the CHANGE module. "Earthwatch" is for the whole module and is about constant but unpredictable changes going on in the world each day. There is a separate integrative activity for each problem area. "What Happened Here?" is for the Change in Non-human Organisms problem area, "'In' Today, 'Out' Tomorrow" is for the Change in Humans problem area, and "What Does It Tell?" is for the Change in Non-living Things problem area.

PROBLEM AREA: Change in Non-human Organisms

Change in Non-human Organisms is about changes in plants, animals, and microorganisms (living things too small to see with just your eye). The clusters of activites are shown on the chart.

ACTIVITY CLUSTERS

Plant Activities	Animal Activities	Microorganism Activities
Quiet: Plants Working	You, the Animal Trainer	Yeast It!
Bean Rhythms	Cool It!	Microbes in Milk
GA and the Beanstalk	Goldfish and Drugs	Changing the Recipe
Tree Rings and Time	Earth Movers	
The More the Better?	Who Survives?	
	Change and Change Again	
	Of Time and Temperature	

PROBLEM AREA: Change in Humans

This problem area is divided into two clusters of activities. The clusters are Personal and Interpersonal Change and Social Change. Changes that happen to the individual and between individuals are the subject of study in the Personal and Interpersonal Change Cluster. Social Change is about changes in societies and cultures over long and short periods of time.

ACTIVITY CLUSTERS

Personal and Interpersonal Change Activities	Social Change Activities
Input/Output	Technoland
Biofeedback	Do Not Spit at Random
Nostalgia Box	Controlling Community Change
The Phantom Tollbooth	Growing up Politically
Me Now, Me Then, Me When	Adopt-A-Stock
Divorce	Acculturation
Death	Architectural Change
Changing Behavior	
Positive Mail	

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PROBLEM AREA: Change in Non-living Things

The third problem area, Change in Non-living Things, deals with physical changes, changes in the earth and changes in design. One activity deals with calculating. The clusters of activities are shown on the following chart.

ACTIVITY CLUSTERS

Physical Changes Activities	Indicators Activities	Geological Changes Activities	Changes in Design, Calculating
Milk Bar	Acids, Bases, and Indicators	Rock Around	Solar Energy
Watch the Crystals Grow	Cookie Chemistry	Streaming Along	Rubber Band Cannon
Ice-Water-Ice	Metal Overcoats		Changing Numbers
Disappearing Water			
Wind Power/ Person Power			
Calories, Calories			
Sweet Concrete			

RECORDS

Your Change Record lists the titles of all activities in the CHANGE module by problem area. Answer the questions in the Change Record for each activity. Keep your Change Record up-to-date. You will also use your Change Record to keep your record sheets and other papers from the CHANGE module.

You will need to circle YES or NO for each activity some time while you work on the CHANGE module. YES means that you know enough about the activity to be accountable for learning something about it. NO means you are not accountable for the activity. You may have worked only part of a class period or several weeks on any one activity. If you gathered data, did the experiment, answered the questions, or learned all you could learn from the activity, then circle YES for that activity. You need not have done the Going Further section of the activity to mark YES.

After you complete each activity, answer the questions about that activity in the space provided. Answer each question in as few words as possible. Think before you write.

How many activities should you do? You and your teacher are the only ones who can answer this question fairly. With variation in growth among members of any class, a single answer is not possible.

If you have trouble working on your own, set goals for each week. Your teacher can help you with this.

SELF-EVALUATION

There will be three evaluation periods in CHANGE. An evaluation period will be scheduled when your class has completed each problem area.

At each evaluation period you will be using the following things: "My Activity Record," "Problems to Solve," and "Self-Rating Problems." Materials are labeled Evaluation Period 1, Evaluation Period 2, and Evaluation Period 3. Be sure you are using the correct materials for each evaluation period. A summary of your evaluation will be recorded in "Mapping My Progress in Human Sciences."

EVALUATION PERIODS

At each evaluation period you will need your Change Record and a soft-lead (number 2) pencil. Be sure to use the materials for the appropriate problem area.

1. "My Activity Record" Complete the "My Activity Record" form for the appropriate evaluation period. Mark one and only one response for each activity. This form will be processed by machine. Please don't make any extra marks on it.
2. "Problems to Solve" This booklet contains three kinds of problems: Objective Problems, Choose Your Problem problems, and Self-Rating Problems.

There are 15 multiple-choice problems in the section entitled Objective Problems. The instructions for marking these problems are on the problem form.

There is one page of Choose Your Problems. Select any one problem from the list in the booklet. Choose the most difficult problem you can solve. The choice of problem and your answer should represent the best work you can do. Be sure you answer the problem completely. Practice writing your answer on scratch paper before you write it on the Choose Your Problem Work Sheet. You will need one set of Choose Your Problem Work Sheets for your answer--white, Copy 1, and yellow, Copy 2.

Self-Rating Problems are in two groups: Work Habits and Skills Development. Both you and your teacher will respond to these problems. Directions are on the problem sheet. When you complete your ratings, remove the Self-Rating Problems from the booklet and turn them in to your teacher.

You now have produced four kinds of evaluation data in addition to the activity products you have kept in your Change Record. These data are designed to help you map your path through Human Sciences for the whole school year. When the items from Objective Problems have been marked, you will need all of your papers to help you complete "Mapping My Progress in Human Sciences."

Mapping My Progress In Human Sciences

Level III
1975-1976

Experimental Edition 1975
Human Sciences Project

INTRODUCTION

The set of charts in this booklet are designed to help you show your progress in Human Sciences throughout the school year. You will use this booklet to keep records for all four of the Level III modules.

Each chart has a set of instructions and places for you to write what you think the charts mean. You will put data on each chart at the end of each evaluation period.

Charts and graphs help to display data. However, charts and graphs by themselves do not explain what the data mean. They also do not explain whether the data are important. You will have to read the graphs to find out (derive) what they mean. If a graph goes up and then down, does it mean that something got better, and then worse? A person has to know more than can be put on a graph to interpret it.

This booklet is yours. Use it to show others what you have done in Human Sciences this year. Use it during grading periods as a tool to help decide your grade.

ACTIVITY ACCOUNTABILITY CHART

Key to Evaluation Periods

Evaluation Period	Date	Module Title	Problem Area
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

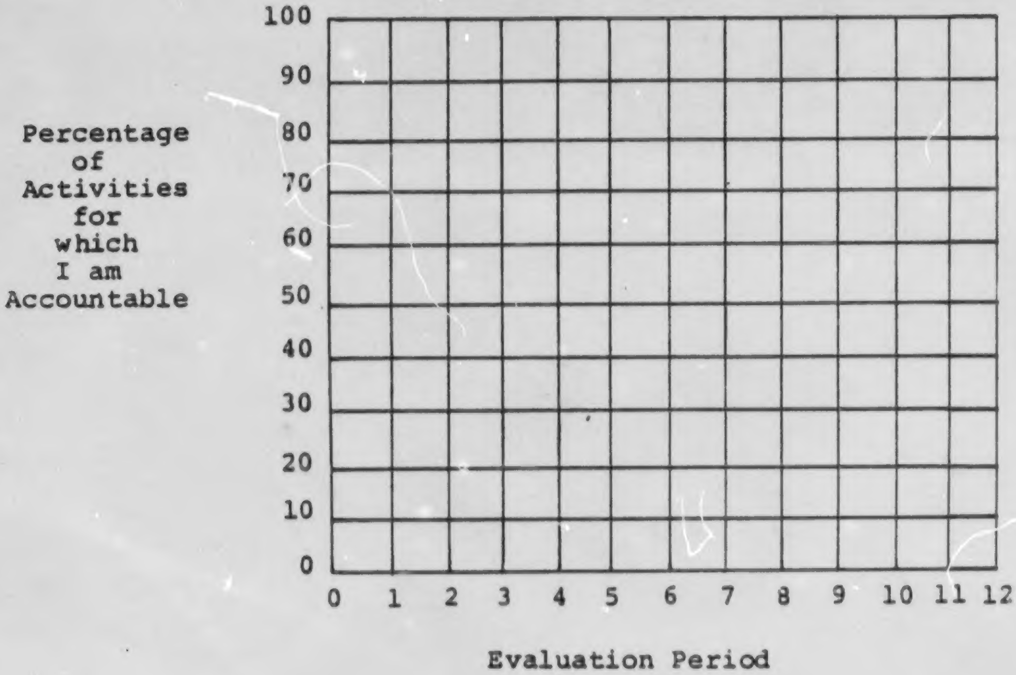
DATA: Number of activities in the problem area. ______(a)

Number of activities I marked YES in my Change Record. ______(b)

CALCULATION: Calculate (figure out) the percentage of activities you marked YES. $a\overline{)b}$ x 100 = ______%.

GRAPHING: Locate the line on the Activity Accountability Graph for this evaluation period. Put a dot (·) on the line at the "address" for the percentage you calculated above. Beginning with Evaluation Period 2, connect the dots with straight lines to make a line graph.

ACTIVITY ACCOUNTABILITY GRAPH



What My Graph Means*

Evaluation Period 3 ____
____
____
____

Evaluation Period 6 ____
____
____
____

Evaluation Period 9 ____
____
____
____

Evaluation Period 12 ____
____
____
____

*Explain why the line has gone up and/or down.

OBJECTIVE PROBLEM CHART

Evaluation Period	Date	Module Title	Problem Area
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

DATA: Number of items I answered. ______(a)
Number of items I answered correctly. ______(b)
Number of Objective Problems. 15

CALCULATION: Calculate the percentage of problems chosen. $15\overline{)(a)}$ x 100 ______%(c)

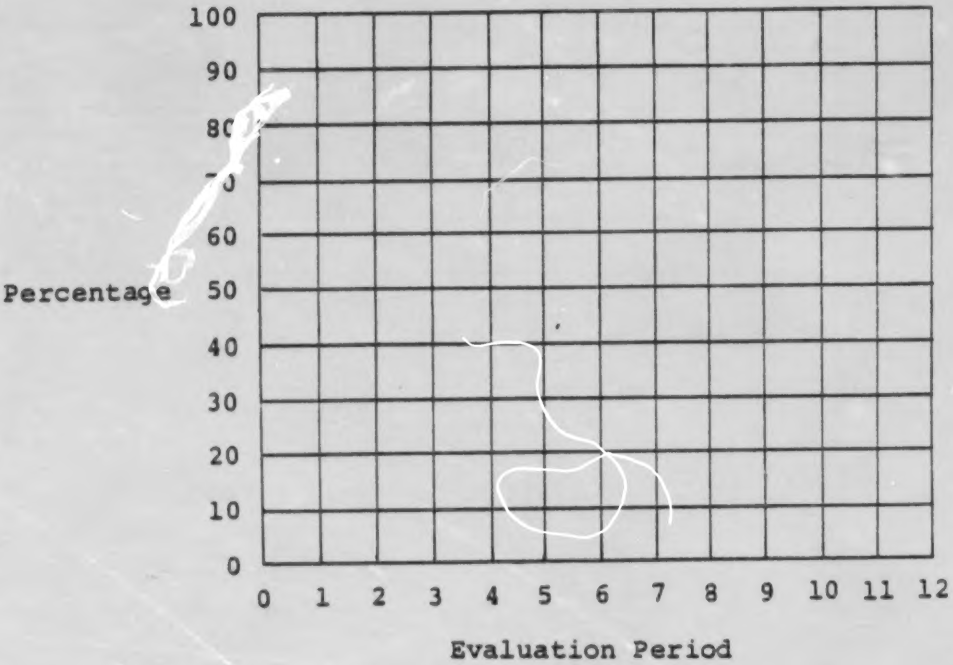
Calculate the percentage of problems chosen answered correctly. $(a)\overline{)(b)}$ x 100 ______%(d)

GRAPHING: Use the Objective Problem Graph to make two line graphs using the symbols shown in the key. Locate the line for this evaluation period. Put a circle (0) at the "address" for the percentage of problems you chose (c). Put an X at the "address" of the percentage of problems you chose and answered correctly (d). Draw lines to connect circles with circles and X's with X's beginning with the second evaluation period.

OBJECTIVE PROBLEM GRAPH

Key: 0 = percentage of problems chosen

X = percentage of problems chosen and answered correctly



What My Graphs Mean

Evaluation Period 3 ______________________________________

____

____

Evaluation Period 6 ______________________________________

____

____

Evaluation Period 9 ______________________________________

____

____

Evaluation Period 12 _____________________________________

____

____

Staple your self-rating scales here.

MY ACTIVITY RECORD

NAME ______________________

TEACHER ______________________

DATE ______________________

Change in Non-human Organisms

Directions: Mark each activity by marking the number of the most correct statement.

Do you want to be accountable for the activity?

if	YES	Mark 1 if you completed at least one part of the activity. Mark 2 if you completed all parts of the activity. Mark 3 if you learned by observing another's activity.
if	NO	Mark 4 if you haven't looked at it. Mark 5 if you haven't had time to do it. Mark 6 if you haven't wanted to do it.

Quiet: Plants Working

Bean Rhythms

GA and the Beanstalk

Tree Rings and Time

The More the Better?

You, the Animal Trainer

Cool It!

Goldfish and Drugs

Earth Movers

Who Survives?

Change and Change Again

Of Time and Temperature

Yeast It!

Microbes in Milk

Changing the Recipe

Did you use any of the three booklets listed below?

YES	Mark 1 if you used it a few times. Mark 2 if you used it a whole lot.
NO	Mark 3 if you haven't looked at it. Mark 4 if you already knew about the subject. Mark 5 if you tried to use it, but it didn't help.

Working with Fruit Flies

Making and Using Graphs

Seeing Small Things

Objective Problems

Directions: Record your answers to the Objective Problems to Solve in the column at the right. Part of the question is repeated to help you keep your place. Record the reason for your answer in the space provided.

1. Yeasts are . . . Reason: __________ 1.

2. Nicotine on a goldfish's tail . . . Reason: __________ 2.

3. When you look at tree rings . . . Reason: __________ 3.

4. The term metamorphosis . . . Reason: __________ 4.

5. The word used to name the process . . . Reason: __________ 5.

6. Bread rising and fermentation . . . Reason: __________ 6.

7. Alcohol on a fish's tail causes . . . Reason: __________ 7.

8. The best prediction . . . Reason: __________ 8.

9. Fermentation is caused . . . Reason: __________ 9.

10. Stages in fruit fly development . . . Reason: __________ 10.

11. Incubators . . . Reason: __________ 11.

12. Larry baked two cakes . . . Reason: __________ 12.

13. The cause of the plaster cracking . . . Reason: __________ 13.

14. A fish's gill flaps . . . Reason: __________ 14.

15. Pond A and Pond B . . . Reason: __________ 15.

Name ____________________

Teacher ____________________

Date ____________________

Problems to Solve

1. Objective Problems
2. Choose Your Problem
3. Self-Rating Problem

Evaluation Period 1

Change in Non-human Organisms

Human Sciences Program
Level III
Experimental Edition 1975

OBJECTIVE PROBLEMS

CHANGE: Change in Non-human Organisms

Your goal for these problems is to show how much you have learned. Answer as many questions as you can.

Read each problem carefully. If you do not choose to answer it, circle response 7. If you choose to answer it, circle the number of the best answer.

For every problem you answer, write the reason for choosing your answer. The question will be counted wrong if you do not give the reason for your choice.

When you have completed the 15 problems, record your answers and reasons on the separate answer sheet labeled "Objective Problems." This booklet is for your records. The answer sheet will be sent to BSCS.

---

1. Yeasts are

    1. viruses
    2. not alive
    3. chemicals
    4. tiny organisms
    7. I did not choose this problem.

Reason: ________________________________

---

2. When a nicotine solution is put on a goldfish's tail it causes

    1. nerve cells to contract (get smaller)
    2. blood flow to speed up
    3. nerve cells to expand (get larger)
    4. blood flow to slow down
    7. I did not choose this problem.

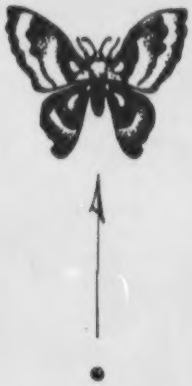
Reason: ________________________________

3. When you look at tree rings you can tell

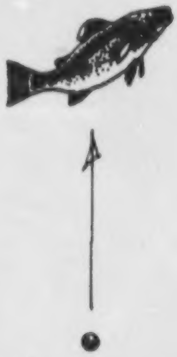
1. about how many years the tree lived
2. what kind of soil the tree grew in
3. about when the tree was planted
4. about when the tree was cut down
7. I did not choose this problem.

Reason: ______________________________

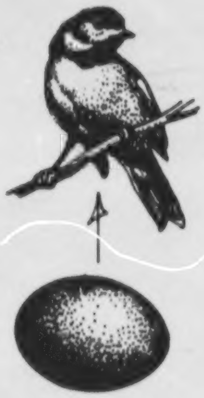
A



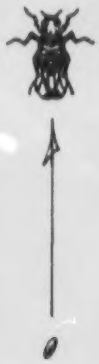
B



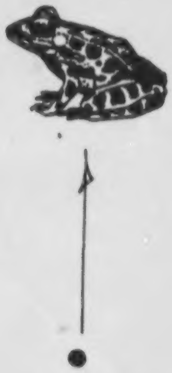
C



D



E



4. Metamorphosis is shown in pictures

1. A, B, and D
2. B and C
3. A and D
4. A, D, and E
5. B, C, and E
7. I did not choose this problem.

Reason: ______________________________

5. The word that is used to name the process of teaching an animal to respond to a noise is

1. controlling
2. bugging
3. tricking
4. conditioning
5. learning
7. I did not choose this problem.

Reason: ______________________________

---

6. Bread rising and juice fermenting are processes that are caused by

    1. living things changing living things
    2. living things changing non-living things
    3. non-living things changing living things
    4. non-living things changing non-living things
    7. I did not choose this problem.

Reason: ____

---

7. When alcohol is put on a fish's tail it causes the

    1. nerve cells to curl up
    2. blood vessels to contract (get smaller)
    3. blood vessels to expand (get larger)
    4. nerve cells to shrivel up and die
    7. I did not choose this problem.

Reason: ____

---

8. This was the start of an experiment with tomato plants

A

No fertilizer

B

1/2 strength fertilizer

C

Full strength fertilizer

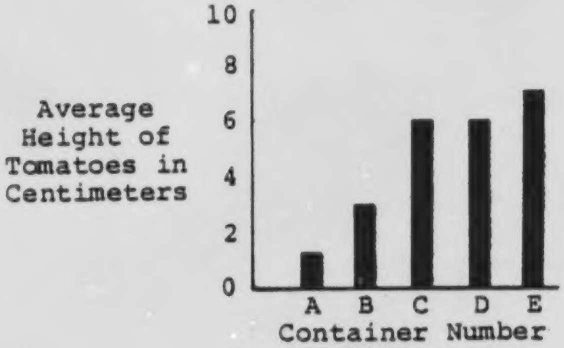
D

6 times full strength fertilizer

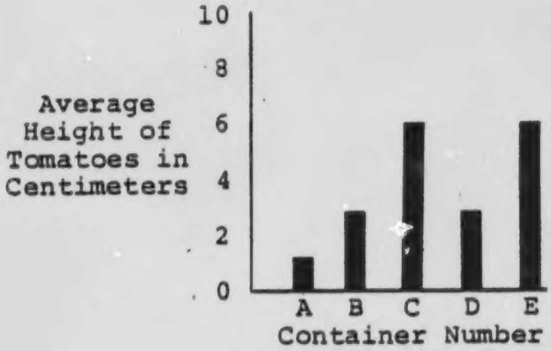
E

12 times full strength fertilizer

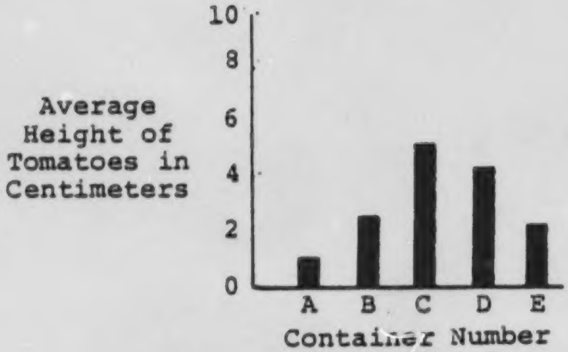
Circle the prediction number that is the best prediction of what the average height of the tomato plants will be after four or five weeks.



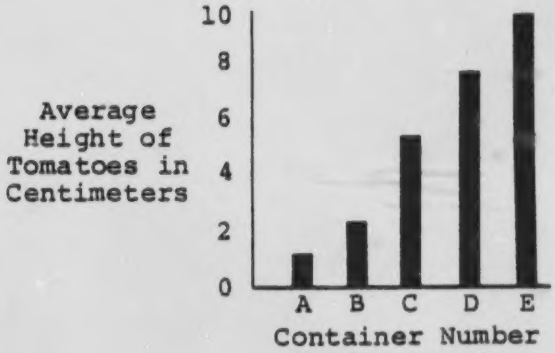
Prediction 1



Prediction 2



Prediction 3



Prediction 4

Reason: ____

9. Fermentation is caused by

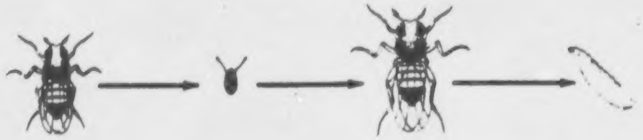
1. water changing yeast
2. sugar changing yeast
3. yeast changing water
4. sugar changing fruit juice
5. yeast changing sugar
7. I did not choose this problem.

Reason: ______________________________

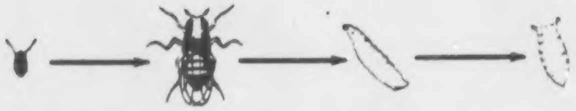
---

10. Choose the pictures that represent the development of the fruit fly from youngest stage to oldest stage.

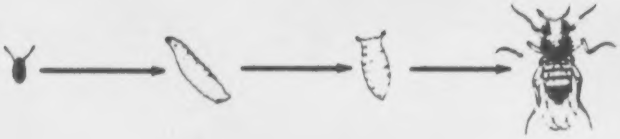
1.



2.



3.



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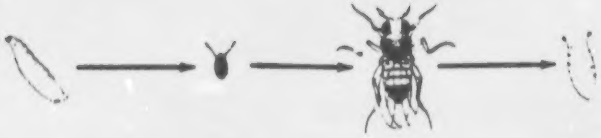

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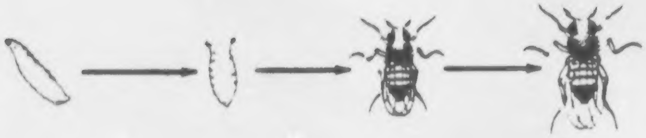


7. I did not choose this problem.

Reason: ______________________________

11. Incubators are supposed to maintain

1. a controlled environment
2. temperatures above 25°C
3. food supplies for microorganisms
4. moist air
7. I did not choose this problem.

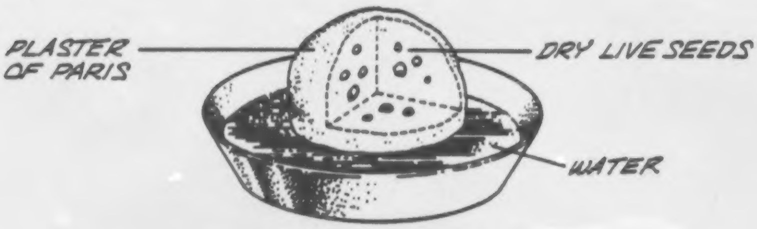
Reason: ____

---

12. Larry baked two cakes. He made cake A with baking powder and cake B without baking powder. Mark the statement below that best explains Larry's experiment.

1. Cake B is the variable and cake A is the control.
2. Baking powder is the variable and cake B is the control.
3. Cake A is the variable and baking powder is the control.
4. Cake A is the variable and cake B is the control.
5. Baking powder is the experiment, cakes A and B are the controls.
7. I did not choose this problem.

Reason: ____



13. Two days after the plaster of Paris ball was placed in water, the ball cracked and broke. The cause of the plaster cracking was that

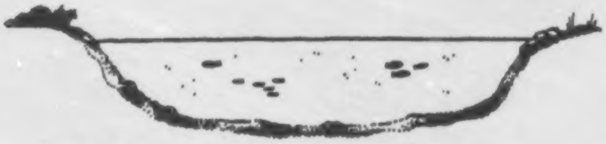
1. plaster cracks after being partly in water
2. the seeds grew
3. the seeds rotted
4. the seeds expanded
7. I did not choose this problem.

Reason: ____

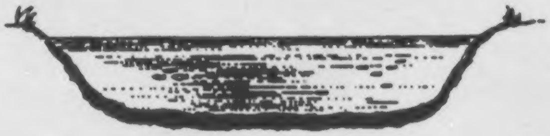
14. As the temperature changes from 20°C to 12°C a fish's gills flap

1. faster
2. at the same rate
3. slower
4. faster and then stop
5. slower and then stop
7. I did not choose this problem.

Reason: ____



Pond A
(clear with sandy bottom)



Pond B
(dirty with muddy bottom)

15. Both of these ponds contain light-colored fish and dark-colored fish. Which types of fish will be eaten more often in each pond?

1. more light-colored fish in A and dark-colored fish in B
2. more light-colored fish in both A and B
3. equal number of light-colored and dark-colored fish in both A and B
4. more dark-colored fish in B
5. more dark-colored fish in A and light-colored fish in B
7. I did not choose this problem.

Reason: ____

Check your booklet and answer sheet. Every question should be marked.

Now, turn to Choose Your Problem on the next page.

Choose Your Problem

Select any one of the following problems. Copy the item letter and the underlined words of this problem on the "Choose Your Problem Work Sheet." Write your answer to the problem on a "Choose Your Problem Work Sheet." Be sure to write or draw with enough pressure to make a good second copy.

A. Think about this statement: There are living things that cannot be seen with the unaided eye. Write about why you agree or disagree with the statement. Include evidence (data) in your answer.

B. Use words or pictures to describe an activity you enjoyed. Explain how the activity is about change.

C. Draw or write about some change you learned about. Tell about the situation both before and after the change.

D. How can you tell if a change has taken place? Give a specific example.

E. Name two or three ways that you can measure change? Describe each way. Give an example of each way.

F. Give an example of how an organism changes its environment. Name the organism in your answer. How does it cause the change?

CHANGE

Name ______________________

Teacher ______________________

Change in Non-human Organisms

Date ______________________

Self-Rating Problems

Put an X on the line where you would rate yourself on each statement. Connect your X's with straight lines. Your teacher will make a rating, too.

I. Work Habits

	Most of the time		About half the time		Not often
I work independently--I don't need to be supervised.	1	2	3	4	5
I try even if the reading is hard for me.	1	2	3	4	5
I do activities thoughtfully.	1	2	3	4	5
I choose another activity to do when I'm waiting for long-term things to happen.	1	2	3	4	5
I do my part of clean-up and management of materials.	1	2	3	4	5
I do my part when I work with others on an activity.	1	2	3	4	5
I start a new activity as soon as I finish another.	1	2	3	4	5

II. Skill Development

	(circle one)	
Graphs are becoming useful to me.	agree	disagree
I can use a microscope to see small things.	agree	disagree
I am developing new interests because of Human Sciences activities.	agree	disagree
I am improving in writing about the Human Sciences activities I have done.	agree	disagree
I learned important ideas and information from the activities I chose.	agree	disagree
I have read parts of books and articles because of activities I did.	agree	disagree
I am developing skills in being more exact in what I do.	agree	disagree

CHANGE
CHOOSE YOUR PROBLEM CODING PROTOCOLS

COLUMN		
1-10	Student I.D. Number	

Change in Non-human Organisms
Choose Your Problem A:

Think about this statement: There are living things that cannot be seen with the unaided eye. Write about why you agree or disagree with the statement. Include evidence (data) in your answer.

11	Some things are too small to be seen without a microscope.	1 = no example 2 = one example 3 = two examples 4 = three examples 5 = five examples (or more)
12	There are certain things which cannot be seen.	1 = no example 2 = one example 3 = two examples 4 = three examples 6 = not codable
77-78	Code for CHANGE	= 10
79	Code for Problem Area	
	Change in Non-human Organisms	= 1
	Change in Humans	= 2
	Change in Non-living Things	= 3

CHANGE
CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-human Organisms
Choose Your Problem B:

Use words or pictures to describe an activity you enjoyed. Explain how the activity is about change.

COLUMN	
13-14	Number of words
15	Number of sentences
16	Number of phrases
17-18	Title of activity discussed
	01 Quiet: Plants Working
	02 Bean Rhythms
	03 GA and the Beanstalk
	04 Tree Rings and Time
	05 The More the Better?
	06 You, the Animal Trainer
	07 Cool It!
	08 Goldfish and Drugs
	10 Who Survives?
	13 Yeast It!
	14 Microbes in Milk
	15 Changing the Recipe
	17 Making and Using Graphs
	18 Seeing Small Things
	49 Changing Numbers
	50 activity indeterminant
	51 Two or more of the above activities
19	Explanation of how the activity is about change
	1 = cause and effect stated accurately
	2 = effect only, accurately
	3 = cause only, accurately
	4 = cause and effect stated, inaccuracies
	5 = effect only, inaccuracies
	6 = cause only, inaccuracies
	7 = no explanation of change

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

8

Change in Non-human Organisms
Choose Your Problem C:

Draw or write about some change you learned about. Tell about the situation both before and after the change.

COLUMN	
20-21	Number of words
22	Number of sentences
23	Number of phrases
24-25	Title of activity discussed

01	Quiet: Plants Working
02	Bean Rhythms
03	GA and the Beanstalk
04	Tree Rings and Time
06	You, the Animal Trainer
07	Cool It!
08	Goldfish and Drugs
09	Earthmovers
10	Who Survives?
11	Change and Change Again
13	Yeast It!
14	Microbes in Milk
15	Changing the Recipe
18	Seeing Small Things
50	activity indeterminant
51	two or more of the above
52	student designed activity

26-27 Before and after change

01 = drawing of both before and after change, accurately
02 = description of both before and after change, accurately
03 = drawing of both before and after change, but with error in effect
04 = description of both before and after change, but with error in effect
05 = drawing (or description) of both before and after change, but error in cause
06 = description of before without after change, incorrect effect
07 = drawing with no apparent change
08 = description of after change implied
09 = description with no change described
10 = not codable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-human Organisms
Choose Your Problem D:

How can you tell if a change has taken place. Give a specific example.

COLUMN	
28-29	Number of words
30	Number of sentences
31	Number of phrases
32	How can you tell if a change has taken place? 1 = properties changed (looks different, acts different, grows, looks better) 2 = comparison (different before to after, different time 1 to time 2, different condition A to condition B--control) 3 = by senses or sensing (observing, seeing, sight, touch, taste) 4 = by instruments (microscope) 5 = general statement (everything changed) 6 = two or more of the above 7 = not codable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-human Organisms
Choose Your Problem E:

Name 2 or 3 ways that you can measure change. Describe each way. Give an example of each way.

COLUMN	
33-34	Number of words
35	Number of sentences
36	Number of phrases
37	Measuring change

1 = name of a measuring instrument (thermometer, ruler) only

2 = specific observational change without way of measuring (seed changes to plant, blue changes to red)

3 = both 1 and 2

7 = not codable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-human Organisms
Choose Your Problem F:

Give an example of how an organism changes its environment. Name the organism in your answer. How does it cause the change?

COLUMN	
38-39	Number of words
40	Number of sentences
41	Number of phrases
42	Organisms change their environment 1 = organism named, environmental change accurate, cause accurate 2 = organism named, environmental change accurate, cause not mentioned 3 = organism named, environmental change accurate, mixture of accurate and inaccurate causes 4 = organism named, environmental changes both accurate and inaccurate, mixture of accurate and inaccurate causes 5 = 6 = description understandable but not related to problem 7 = not codable, not understandable

MY ACTIVITY RECORD

Name ______________________

Teacher ______________________

Date ______________________

Change in Humans

Directions: Mark each activity by marking the number of the most correct statement.

Do you want to be accountable for the activity?

if	YES	Mark 1 if you completed at least one part of the activity. Mark 2 if you completed all parts of the activity. Mark 3 if you learned by observing another's activity.
if	NO	Mark 4 if you haven't looked at it. Mark 5 if you haven't had time to do it. Mark 6 if you haven't wanted to do it.

Input/Output

Biofeedback

Nostalgia Box

The Phantom Tollbooth

Me Now, Me Then, Me When

Divorce

Death

Changing Behavior

Positive Mail

Technoland

Do Not Spit at Random

Controlling Community Change

Growing Up Politically

Adopt-A-Stock

Acculturation

Architectural Change

368

OBJECTIVE PROBLEMS

Directions: Record your answers to the Objective Problems to Solve in the column at the right. Part of the question is repeated to help you keep your place. Record the reason for your answer in the space provided.

Change in Humans

1. One person on the graph . . . Reason: __________ 1.
2. Each person whose fluid input . . . Reason: __________ 2.
3. The slanted line of the graph . . . Reason: __________ 3.
4. Two members of . . . Reason: __________ 4.
5. What kind of culture . . . Reason: __________ 5.
6. Some people have high blood pressure... Reason: __________ 6.
7. The biofeedback monitor measures . . . Reason: __________ 7.
8. The best kind of nostalgia box . . . Reason: __________ 8.
9. Mary wants to be friends . . . Reason: __________ 9.
10. Which statement below includes . . . Reason: __________ 10.
11. In which situation . . . Reason: __________ 11.
12. An example of acculturation . . . Reason: __________ 12.
13. When a share of stock splits . . . Reason: __________ 13.
14. The point of the play . . . Reason: __________ 14.
15. When conflicts develop . . . Reason: __________ 15.

Name ______________________
Teacher ____________________
____

PROBLEMS TO SOLVE

1. Objective Problems
2. Choose Your Problem
3. Self-Rating Problems

Evaluation Period 2

Change in Humans

Human Sciences Program
Level III
Experimental Edition 1975

OBJECTIVE PROBLEMS

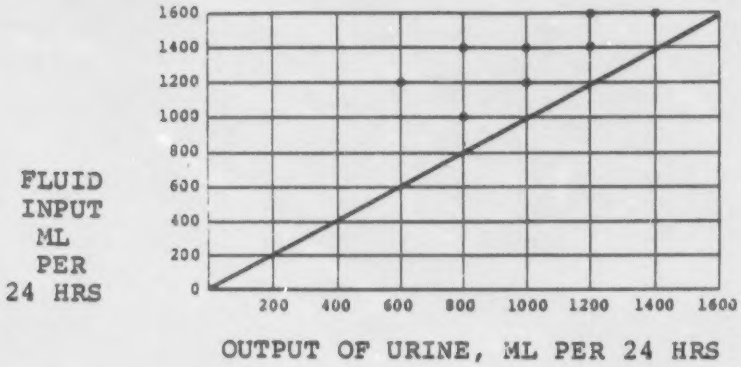
CHANGE: Change in Humans

Your goal for these problems is to show how much you have learned. Answer as many questions as you can.

Read each problem carefully. If you do not choose to answer it, circle Response 7. If you choose to answer it, circle the number of the best answer.

For every problem you answer, write the reason for choosing your answer. The question will be counted wrong if you do not give the reason for your choice.

When you have completed the 15 problems, record your answer and reasons on the separate answer sheet labeled "Objective Problems." The booklet is for your records. The answer sheet will be sent to BSCS.



Each circle on the graph represent one person's fluid input and urine output for a 24 hour period.

1. One person on the graph had a fluid input of 1200 ml and a urine output of

   1. 800 ml
   2. 1,000 ml
   3. 1,200 ml
   4. 1,400 ml
   7. I did not choose this problem.

Reason: ______________________________________

2. Each person whose fluid input and output are shown on the graph probably

   1. is the same sex
   2. has different amounts of activity
   3. is about the same age
   4. is different in weight
   5. has more fluid input than urine output
   7. I did not choose this problem.

Reason: ______________________________________

3. The slanted line of the graph

   1. divides the graph into two halves to make it easy to plot data
   2. includes all points on the graph where fluid input is equal to urine output
   3. shows how fluid input is plotted in relation to urine output
   4. shows how the fluid input of one person relates to the urine output of another person
   7. I did not choose this problem.

Reason: ______________________________________

4. Two members of a hunter and gatherers group were being honored for the discovery they had just made. This discovery was recognized as being very important to the group. What did they discover?

   1. an edible fruit
   2. a vein of gold
   3. a lump of coal
   4. a hardwood tree
   5. new grazing areas
   7. I did not choose this problem.

Reason: ____________________

---

5. Which kind of culture can cause the greatest changes in its environment?

   1. industrial culture
   2. farming culture
   3. hunting and gathering culture
   4. herding culture
   7. I did not choose this problem.

Reason: ____________________

---

6. Some people have high blood pressure. They can learn to control their blood pressure by watching a machine that shows them when their blood pressure is going up. As they see it rise, they think relaxing thoughts. If the blood pressure goes down, they can eventually learn to use the same thought when they feel their blood pressure going up. This kind of cause and effect is called

   1. conditioning
   2. learning
   3. positive reinforcement
   4. biofeedback
   7. I did not choose this problem.

Reason: ____________________

---

7. The biofeedback monitor measures changes in the subject's

    1. thoughts
    2. body activity
    3. skin conductivity
    4. movements
    5. emotions
    7. I did not choose this problem.

Reason: ____

---

8. The best kind of nostalgia box must contain only things

    1. that are pretty to a person
    2. important in a person's life
    3. a person collects
    4. given to a person by others
    5. purchased by a person
    7. I did not choose this problem.

Reason: ____

---

9. Mary wants to be friends with Sue, but Sue always ignores her. Sue will probably become more friendly if

    1. Mary ignores her
    2. Mary asks Sue why she is ignoring her
    3. Mary makes Sue jealous
    4. Mary begins to say hello and smiles
    7. I did not choose this problem.

Reason: ____

GRADE	POLICE OFFICERS	GEORGE WASHINGTON	UNCLE SAM	VOTING	SUPREME COURT	CAPITOL	CONGRESS	FLAG	STATUE OF LIBERTY	PRESIDENT	NO RESPONSE	TOTAL
4	3.1	7.1	9.0	5.4	5.1	8.8	14.5	6.7		18.6	21.7	100.0
5	2.8	3.5	9.7	9.6	8.4	5.8	24.5	5.8	5.6	19.2	5.1	100.0
6	1.8	2.4	8.4	14.0	8.4	4.9	24.8	5.2	8.6	15.1	6.4	100.0
7	1.5	1.7	9.2	19.7	6.8	4.7	22.1	6.4	9.3	13.9	4.7	100.0
8	1.2	0.8	8.4	23.4	7.9	3.5	24.5	5.9	9.8	11.4	3.2	100.0

Table 1. The percentage of students at each grade choosing the two pictures that best showed what government is to them. There were about 1800 students at each grade.

10. Which statement below includes the most data on the chart (is the broadest, most general, interpretation of the chart)?

From 4th to 8th grade the idea that government is

1. police officers decreased
2. voting and congress increased
3. institutions increased
4. the president decreased
7. I did not choose this problem.

Reason: ____________________

---

11. In which situation are the principles of positive reinforcement being applied most?

1. Patty said "Hello" to Jerri. Jerri didn't respond. Patty frowned and said, "I said, hello."
2. Patty said "Hello" to Jerri. Jerri smiled back. Patty walked on.
3. Patty said "Hello" to Jerri. Jerri didn't respond. Patty giggled.
4. Patty said "Hello" to Jerri. Jerri said "Hi." Patty smiled.
7. I did not choose this problem.

Reason: ____________________

12. An example of acculturation is

1. Jane borrows a record from Sandy.
2. Americans buy cars from Germans for economy.
3. Japanese change from rickshaws to automobiles for transportation.
4. George, who was born and grew up in Los Angeles, learns to play baseball.
7. I did not choose this problem.

Reason: ____

13. When a share of stock splits two for one

1. the value of the stock doubles and the number of shares is cut in half
2. the value of the stock is cut in half and the number of shares doubles
3. the value of the stock is not changed but the number of shares doubles
4. the value of the stock doubles but the number of shares is not changed
5. the value of the stock is cut in half but the number of shares is not changed
7. I did not choose this problem.

Reason: ____

14. The point of the play "Do Not Spit At Random" was

1. people can cause changes in other people's behavior
2. people can try to change other people's behavior, but they really don't change
3. people do not like to be criticized in public
4. young people shouldn't try to embarrass older people in public
7. I did not choose this problem.

Reason: ____

15. When conflicts develop between groups (different cultures), which group has the most power to decide the solution to the conflicts?

1. hunters and gatherers more than farmers
2. farmers more than industrialists
3. industrialists more than herders
4. herders more than hunters and gatherers
7. I did not choose this problem.

Reason: ______________________________

Choose Your Problem

Select any one of the following problems. Copy the item letter and underlined words of this problem on the "Choose Your Problem Work Sheet." Write your answer to the problem on a "Choose Your Problem Work Sheet." Be sure to write or draw with enough pressure to make a good second copy.

A. What was the most important change in your life since you were 5 years old? Why was this change important?

B. Write about the most interesting change in humans that you thought about in this problem area. Tell about the change and why it was interesting to you.

C. Name the best activity you worked with in this problem area. Why was it best? Use facts, ideas or feelings in your reasons.

D. Think about the statement, "The students in my classroom are from different cultures." Tell whether you agree or disagree with the statement. Give your reasons for your answer.

CHANGE

Name ____________________

Teacher ____________________

Change in Humans

Date ____________________

Self-Rating Problems

Put an X on the line where you would rate yourself on each statement. Connect your X's with straight lines. Your teacher will make a rating, too.

I. My Work Habits	Most of the time		About half the time		Not often
I work independently--I don't need to be supervised.	1	2	3	4	5
I try even if the reading is hard for me.	1	2	3	4	5
I do activities thoughtfully.	1	2	3	4	5
I choose another activity to do when I'm waiting for long-term things to happen.	1	2	3	4	5
I do my part of clean-up and management of materials.	1	2	3	4	5
I do my part when I work with others on an activity.	1	2	3	4	5
I start a new activity as soon as I finish another.	1	2	3	4	5

II. My Opinion	(circle one)	
Graphs are becoming useful to me.	agree	disagree
I am developing new interests because of Human Sciences activities.	agree	disagree
I found enough interesting activities in this problem area.	agree	disagree
I am improving my writing about the Human Sciences activities I have done.	agree	disagree
I learned important ideas and information from the activities I chose.	agree	disagree
I have read parts of books and articles because of activities I did.	agree	disagree

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Humans
Choose Your Problem A:

What was the most important change in your life since you were five-years old? Why was this change important?

COLUMN	
1-10	Student I. D. number
11-12	Number of words
13	Number of sentences
14	Number of phrases
15-16	Most important change 01 = Physical change (growth, appearance, acne, taller, older, healthier) 02 = Mental change (personality, smarter) 03 = Family changes (divorce, remarriage, birth, death) 04 = move or travel 05 = Going to new school (elementary or junior high) 06 = New skills (sports, cooking, drive a car, going on stage) 07 = Falling in love, broke up, interest in opposite sex, dating 08 = joining an organization (Boy Scouts) 09 = trust (trusted more, on my own more, go out more, do more things, maturity) 10 = started smoking 11 = materials (new bike, new doll) 12 = two or more of the above 13 = uncodable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Humans
Choose Your Problem B:

Write about the most interesting change in humans that you thought about in this problem area. Tell about the change and why it was interesting to you.

COLUMN	
17-18-19	Number of words
20	Number of sentences
21	Number of phrases
22-23	Most interesting change 01 = political ideas 02 = Acculturation 03 = Biofeedback 04 = Divorce 05 = Death 06 = Technoland 07 = Adopt-A-Stock 08 = Expressing thoughts (Nostalgia Box) 09 = Change in thinking--to adult 10 = Change at adolescence 11 = Change in U. S. 12 = Activities are better 13 = How people affect other people's behavior 14 = General, limited comment 15 = uncodeable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Humans
Choose Your Problem C:

Name the best activity you worked with in this problem area. Why was it best? Use facts, ideas or feelings in your reasons.

COLUMN	
24-25	Number of words
26	Number of sentences
27	Number of phrases
28-29	Best activity name (number) 19 = Input/Output 20 = Biofeedback 21 = Nostalgia Box 22 = The Phantom Tollbooth 23 = Me Now, Me Then, Me When 24 = Divorce 25 = Death 26 = Changing Behavior 27 = Positive Mail 28 = Technoland 29 = Do Not Spit at Random 30 = Controlling Community Change 31 = Growing Up Politically 32 = Adopt-A-Stock 33 = Acculturation 34 = Architectural Change
30	Cognitive reason it was best 1 = Learned, general comment 2 = Learned, 1 specific comment 3 = Learned, 2 specific comments 4 = Learned, 1 specific + general comment 5 = Learned, 2 specific + general comments 6 = No cognitive comment 7 = Learned nothing 8 = No data
31-32	Logistic reason it was best 01 = Leave class 02 = Worked with media 03 = Did/made something 04 = Interviewed 05 = Worked with people 06 = No logistic comment 07 = No data 08 = Could do it alone 09 = Didn't take many materials 10 = Two or more logistic reasons

Choose Your Problem C (continued)

COLUMN

33 Attitudinal reason it was best
1 = Had a chance to express my feelings/others expressed feelings.
2 = Affected other people positively.
3 = Affected other people negatively.
4 = Fun, interesting, enjoyable.
5 = I don't like it when applied to me.
6 = Easy to do
7 = Didn't take long
8 = Two or more of the above
9 = No attitude expressed

(If two or more activities were cited, the first one was recorded.)

CHANGE
CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Humans
Choose Your Problem D:

Think about the statement, "The students in my classroom are from different cultures." Tell whether you agree or disagree with the statement. Give your reasons for your answer.

COLUMN	
34-35	Number of words
36	Number of sentences
37	Number of phrases
38	Agree/Disagree 1 = agreement stated 2 = disagreement stated 3 = both agreement and disagreement expressed 4 = agreement or disagreement indeterminant
39	Reason 1 = culture as family background 2 = culture as country of origin 3 = the school as an acculturating institution 4 = culture as a pattern of living 5 = culture as nationality/race 6 = culture as beliefs 7 = not codeable/no information/reiteration

Use first criterion of response when more than one response could be coded.

MY ACTIVITY RECORD

Name ______________________

Teacher ______________________

Date ______________________

Change in Nonliving Things

Directions: Mark each activity by marking the number of the most correct statement.

Do you want to be accountable for the activity?

if	YES	Mark 1 if you completed at least one part of the activity. Mark 2 if you completed all parts of the activity. Mark 3 if you learned by observing another's activity.
if	NO	Mark 4 if you haven't looked at it. Mark 5 if you haven't had time to do it. Mark 6 if you haven't wanted to do it.

Milk Bar

Watch the Crystals Grow

Ice-Water-Ice

Disappearing Water

Wind Power/Person Power

Calories, Calories

Sweet Concrete

Acids, Bases, and Indicators

Cookie Chemistry

Metal Overcoats

Rock Around

Streaming Along

Solar Energy

Rubber Band Cannon

Changing Numbers

OBJECTIVE PROBLEMS

Directions: Record your answers to the Objective Problems to Solve in the column at the right. Part of the question is repeated to help you keep your place. Record the reason for your answer in the space provided.

Change in Nonliving Things

1. The difference in conditions . . . Reason: ________ 1.

2. Data are recorded at each . . . Reason: ________ 2.

3. The rate of change . . . Reason: ________ 3.

4. When crystals of a single substance . . . Reason: ________ 4.

5. The variable in his experiment is . . . Reason: ________ 5.

6. The change caused by adding sugar . . . Reason: ________ 6.

7. Which statement best explains . . . Reason: ________ 7.

8. Any differences in the amount . . . Reason: ________ 8.

9. The energy lighting the bulb . . . Reason: ________ 9.

10. How many calories . . . Reason: ________ 10.

11. What change in hills and mountains . . . Reason: ________ 11.

12. Tom knows that . . . Reason: ________ 12.

13. Which change is reversible? . . . Reason: ________ 13.

14. The bark is going to be cut away . . . Reason: ________ 14.

15. What do you think of Bobby's procedure... Reason: ________ 15.

Name ____________________
Teacher ____________________
Date ____________________

PROBLEMS TO SOLVE

1. Objective Problems
2. Choose Your Problem
3. Self-Rating Problems

Evaluation Period 3

Change in Non-living Things

[illegible]

Human Sciences Program
Level III
Experimental Edition 1975

OBJECTIVE PROBLEMS

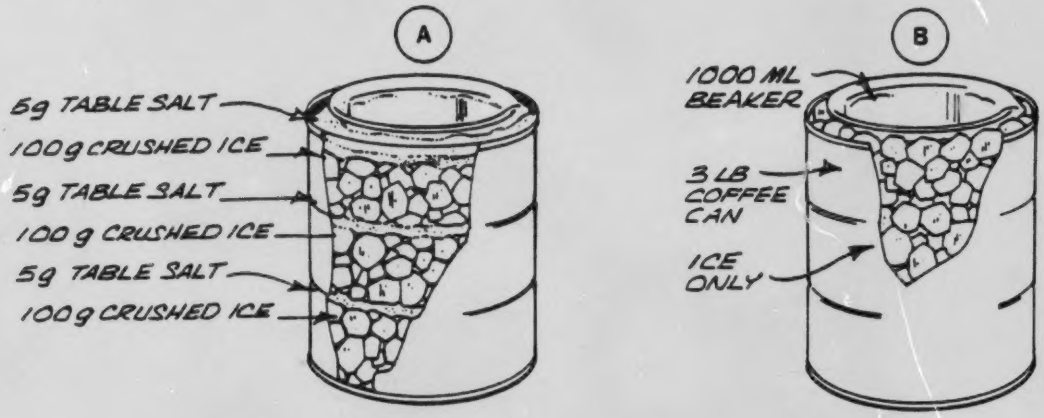
CHANGE: Change in Non-living Things

Your goal in answering these problems is to show how much you have learned by doing the activities in this problem area. Answer as many questions as you can.

Read each problem carefully. If you do not choose to answer it, circle response 7. If you choose to answer it, circle the number of the best answer.

For every problem you answer, write the reason for choosing your answer. The question will be counted wrong if you do not give the reason for your choice.

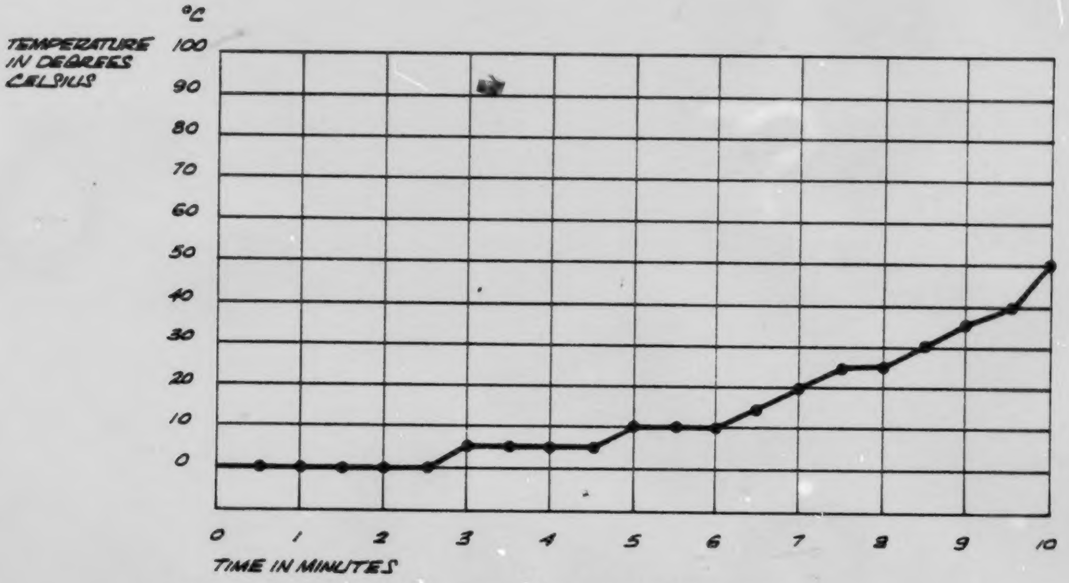
When you have completed the 15 problems, record your answer and reasons on the separate answer sheet labeled "Objective Problems." This booklet is for your records. The answer sheet will be sent to BSCS.


A
5g TABLE SALT
100g CRUSHED ICE
5g TABLE SALT
100 g CRUSHED ICE
5g TABLE SALT
100g CRUSHED ICE
B
1000 ML BEAKER
3 LB COFFEE CAN
ICE ONLY

1. The difference in conditions inside the beaker in A as compared to B, is:

   1. A will be salty
   2. A will be colder
   3. A will be drier
   4. A will be in motion
   7. I did not choose this problem.

Reason: ______________________________



READINGS FROM A THERMOMETER IN A BAG OF ICE

2. Look at the graph above. Data are recorded at each

   1. one-half minute
   2. minute
   3. two minutes
   4. ten minutes
   5. one hundred minutes
   7. I did not choose this problem.

Reason: ______________________________

3. Look at the lines 1 to 2 and 3 to 4 in the above graph. The rate of change

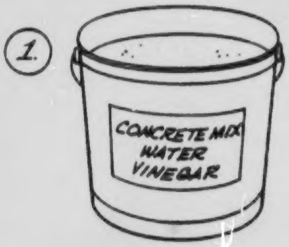
   1. is more from 1 to 2 than from 3 to 4
   2. is more from 3 to 4 than from 1 to 2
   3. is the same from 1 to 2 as from 3 to 4
   4. cannot be figured out from the graph
   7. I did not choose this problem.

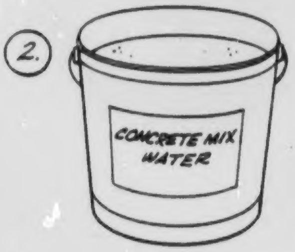
Reason: ______________________________

4. When crystals of a single substance like sugar or potassium sulfate grow in water, the crystals are

1. the same size, shape, and color
2. the same size and shape, but different colors
3. the same color, but different sizes and shapes
4. the same size and color, but different shapes
5. the same color and shape, but different sizes
7. I did not choose this problem.

Reason: ______________________________





5. Tim wanted to find out if there would be any difference in the concrete from Pail 1 and Pail 2. The variable in his experiment is

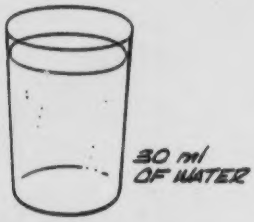
1. concrete
2. water
3. vinegar
4. pail
7. I did not choose this problem.

Reason: ______________________________

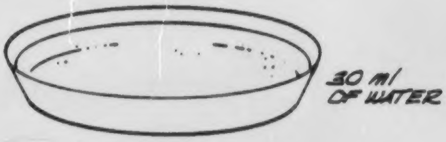
6. The change caused by adding sugar to concrete is that the "sweet concrete"

1. turned white as it dried
2. became hard more quickly than regular concrete
3. never became hard
4. became hard more slowly than regular concrete
7. I did not choose this problem.

Reason: ______________________________



A



B

7. Which statement best explains what you would find if you measured the water in each container after two days?

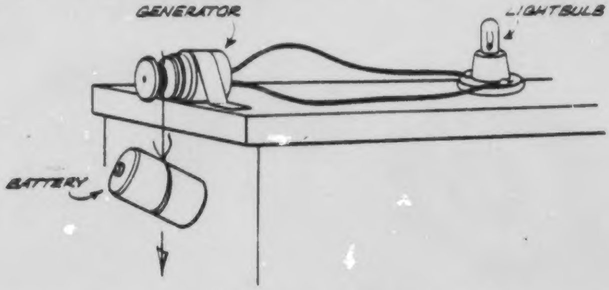
   1. The same amount of water will be in both containers.
   2. Container A will have more water than Container B.
   3. They will both be dry.
   4. Container B will have more water than Container A.
   7. I did not choose this problem.

Reason: ____

8. Look at the drawing of Containers A and B. Think about how much water will be in each container after two days. Any differences in the amount of water in the containers will be caused by differences in the

   1. height of the containers
   2. depth of the water in the containers
   3. surface area of the water in the containers
   4. amount of light on the containers
   7. I did not choose this problem.

Reason: ____



9. The battery is dropped, turning the shaft of the generator. The bulb lights. The energy lighting the bulb comes from

1. the mechanical energy of the falling battery
2. the electrical energy from the falling battery
3. the chemical energy from the falling battery
4. the generator--the falling battery has nothing to do with it
7. I did not choose this problem.

Reason: ______________________________

---

10. Laurie burned 10 g of peanuts in a calorimeter. The heat produced raised 10 g of water 2°C. How many calories did the peanuts produce?

1. 20
2. 100
3. 200
4. 12
5. 22
7. I did not choose this problem.

Reason: ______________________________

---

11. What change in hills and mountains is most like the change caused in "Rock Around"?

1. volcanos
2. earthquakes
3. running water
4. winds
5. landslides
7. I did not choose this problem.

Reason: ______________________________

15. Bobby decided to find out if the amount of baking powder in a cake recipe would change the cake. He followed a cookbook cake recipe, but left out all of the baking powder and part of the water.

What do you think about Bobby's procedure?

1. He will answer his question because he has a control.
2. He will answer his question because he didn't follow the recipe.
3. He won't answer his question because he didn't follow the recipe.
4. He won't answer his question becuase he changed two variables.
7. I did not choose this problem.

Reason: ______________________________

Choose Your Problem

Select any one of the following problems. Copy the item letter and the underlined words of this problem on the "Choose Your Problem Work Sheet." Write your answer to the problem on a "Choose Your Problem Work Sheet." Be sure to write or draw with enough pressure to make a good second copy.

A. Describe an activity in which something changed. Explain the cause of the change. Give proof that what you say is the real cause of the change.

B. When vinegar is added to ammonia, does just the vinegar change, just the ammonia change, or do both change? How do you know?

C. Describe an experiment that would let you find out if one thing caused a change.

D. Describe an experiment you designed. Describe your interpretation of the results of the experiment.

E. Write a description or make a drawing about a situation both before and after a change took place. Use an example from this problem area. Include the cause of the change in your drawing or explanation.

CHANGE

Name ____________________

Teacher ____________________

Date ____________________

Change in Non-human Organisms

Self-Rating Problems

Put an X on the line where you would rate yourself for each statement. Connect your X's with straight lines. Your teacher will make a rating, too.

I. Work Habits

	Most of the time		About half the time		Not often
	1	2	3	4	5
I work independently--I don't need to be supervised.	1	2	3	4	5
I try even if the reading is hard for me.	1	2	3	4	5
I do activities thoughtfully.	1	2	3	4	5
I choose another activity to do when I'm waiting for long-term things to happen.	1	2	3	4	5
I do my part of clean-up and management of materials.	1	2	3	4	5
I do my part when I work with others on an activity.	1	2	3	4	5
I start a new activity as soon as I finish another.	1	2	3	4	5

II. Skill Development

	(circle one)	
Graphs are becoming useful to me.	agree	disagree
I used the hand-held calculator.	agree	disagree
I am developing new interests because of Human Sciences activities.	agree	disagree
I found enough interesting activities in this problem area.	agree	disagree
I am improving my writing about the Human Sciences activities I have done.	agree	disagree
I learned important ideas and information from the activities I chose.	agree	disagree
I have read parts of books and articles because of activities I did.	agree	disagree
Using the hand-held calculator helped me do activities.	agree	disagree

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-living Things
Choose Your Problem A:

Describe an activity in which something changed. Explain the cause of the change. Give proof that what you say is the real cause of the change.

COLUMN	
1-10	Student I. D. number
11-12-13	Number of words
14	Number of sentences
15	Number of phrases
16-17	Title of activity discussed 35 = Milk Bar 36 = Watch the Crystals Grow 37 = Ice-Water-Ice 38 = Disappearing Water 39 = Wind Power/Person Power 40 = Calories, Calories 41 = Sweet Concrete 42 = Acids, Bases, and Indicators 43 = Cookie Chemistry 44 = Metal Overcoats 45 = Rock Around 46 = Streaming Along 47 = Solar Energy 48 = Rubber Band Cannon 49 = Changing Numbers 50 = Activity indeterminant--not codeable 51 = two or more of the above
18	Change and cause of change 1 = description of both before and after change, accurately 2 = description of both before and after change, but with error in effect 3 = description of before and after change, but error in cause 4 = description/drawing of before and after change with no cause 5 = description of before without after change, correct cause 6 = description with no change described. 7 = drawing with no apparent change 8 = not codeable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-living Things
Choose Your Problem B:

When vinegar is added to ammonia, does just the vinegar change, just the ammonia change, or do both change? How do you know?

COLUMN

19-20 Number of words

21 Number of sentences

22 Number of phrases

23 What changes?
  1 = both changes
  2 = only ammonia changes
  3 = only vinegar changes
  4 =
  5 =
  6 = no answer to question
  7 = not codeable

24 How do you know?
  1 = did the activity (watched someone do it)
  2 = vinegar is acid and ammonia is base
  3 = ammonia is stronger
  4 = the color changed
  5 = tested it with colored paper, litmus paper
  6 = no answer to question
  7 = not codeable

CHANGE
CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-living Things
Choose Your Problem C:

Describe an experiment that would let you find out if one thing caused a change.

COLUMN	
25-26-27	Number of words
28	Number of sentences
29	Number of phrases
30	One thing caused a change 1 = one causal agent identified, effect stated, both accurate or vary only one thing 2 = causal agent(s) and/or effected agent(s) not clearly delineated 3 = cause and/or effect not accurate 4 = explanation of a non-causal phenomenon, poured Koolaid into water, setup apparatus 5 = effect stated, cause not clear 6 = unlabeled or partly labeled drawing, not interpretable 7 = Not codeable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-living Things
Choose Your Problem D:

Describe an experiment you designed. Describe your interpretation of the results of the experiment.

COLUMN	
31-32	Number of words
33	Number of sentences
34-35	Number of phrases
36	Describe an experiment you designed 1 = original experiment described, not a controlled experiment 2 = original experiment described, a controlled experiment 3 = original activity, not an experiment 4 = adaptation of HSP activity 5 = reiteration of HSP activity 6 = no description/drawing 7 = not codeable
37	Interpret the results 1 = original experiment interpreted 2 = 3 = 4 = HSP experiment, point understood 5 = HSP experiment, point missed 6 = no interpretation 7 = not codeable

CHANGE

CHOOSE YOUR PROBLEM CODING PROTOCOLS

Change in Non-living Things
Choose Your Problem E:

Write a description or make a drawing about a situation both before and after a change took place. Use an example from this problem area. Include the cause of the change in your drawing or explanation.

COLUMN	
38-39	Number of words
40	Number of sentences
41-42	Number of phrases
43	Description or drawing of before and after change 1 = both before and after accurate 2 = both before and after, inaccuracies 3 = only one aspect, before or after, described 4 = 5 = illustrations, unclear 6 = 7 = not interpretable (includes activities in other problem areas)
44	Cause of change 1 = cause explicit and accurate 2 = cause explicit not accurate 3 = cause in drawing, label, or explanation, but not identified as cause 4 = 5 = cause illustrated or implied, accurately 6 = cause not indicated 7 = not codeable

CHANGE PROBLEM AREA ____________________

CHOOSE YOUR PROBLEM WORK SHEET

Name ____________________ School ____________________

Teacher ____________________ Date ____________________

Write the problem letter you are answering in the space at the left. Copy the underlined part of the problem exactly as it is printed on the paper, "Choose Your Problem."

Problem Letter	Copy the underlined part of the problem here:

Write your answer or make your drawing here.

COPY 1: KEEP THIS COPY IN YOUR CHANGE BOOKLET

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FACILITATING SELF-EVALUATION

Helping students to develop skills in reflective thinking is an important goal of the Human Sciences Program. The ways in which you communicate with students is a critical aspect of goal attainment. You can help students achieve this goal by practicing reflective thinking in activity situations. Here are some specific skills you might have in mind as you interact with students.

1. Skill in devising and setting up experimental apparatus
2. Skill in the use of scientific measuring instruments, such as the sphygmomanometer, thermometer, microscope, etc.
3. Skill in recognizing sources of error in observation and measurement
4. Skill in making sense out of interview data
5. Skill in using books and libraries as sources of information
6. Skill in evaluating conflicting data from different reference sources
7. Skill in conducting discussions in ways to bring the main ideas to the forefront
8. Skill in making generalizations only as general, as are warranted by information and readiness to revise them in the light of new evidence.
9. Skill in searching out and trying alternative approaches and points of view on a problem
10. Skill in seeing a problem through to its conclusion in spite of distractions

The problems students are asked to solve in their Problems to Solve booklets can only sample a few of these skills. Your judgment and the student's judgment regarding progress in developing these skills must be a major ingredient in the evaluation process for this module.

EVALUATION PERIODS

Evaluation is a continuous activity throughout the module. Students should be encouraged to keep the "FEELING FIT Folder" up-to-date. They need to be reminded to save samples of their best work in their Folders to show the kind and quality of work they are producing.

The design of FEELING FIT makes formal end-of-the-module evaluation, rather than evaluation at the end of each problem area, the best option. You may want to set aside some time during each week to help students in small groups, or as a total class, to review what they have done, to organize their thoughts as to new problems they now recognize, and to assess the major new ideas and facts they have encountered.

In summary, the formal evaluation activity for FEELING FIT will be conducted only at the end of the module. We estimate that it will require three or four class periods to complete.

The materials provided in the module are listed in the table that follows. In addition, students will need to again use their "Mapping My Progress in Human Sciences, Level III." This booklet was sent with the CHANGE module evaluation materials.

EVALUATION MATERIALS AND TIME OF USE

TITLE	DESCRIPTION	TIMING
FEELING FIT Folder	Lists activity titles by problem area and asks key questions for each activity finished (one per student)	Daily and at the evaluation periods at the end of the module. (Task 1)
Student Guide to FEELING FIT	This booklet describes the module for students (and parents). It also explains the evaluation materials and procedures (one per student)	Daily and at the evaluation periods at the end of the module.

TITLE	DESCRIPTION	TIMING
My Activity Record	This is one machine scorable form for the entire module. It also includes book titles provided in the module. (one per student)	End-of-module evaluation periods (Task 2)
Problems to Solve	This booklet contains three sets of Objective Problems, one set of Choose Your Problem, and a Self-rating scale.	End-of-module evaluation periods (Task 3)
Objective Problems 3 and 4	This is a machine scorable form for recording answers to two of three sets of objective problems in the Problems to Solve booklet. (one per student)	End-of-module evaluation periods, following completion of Task 3
Objective Problems 5 and Self-rating Problems	This is a machine scorable form for recording answers to one Objective Problem set and for the Self-rating Scale. (one per student)	End-of-module evaluation period (Tasks 3 and 4)
Choose Your Problem Work Sheets	These are for student responses to short answer essay problems. They are printed on NCR paper. Copy 1 is for the student to retain in his or her Folder. Copy 2 is to be mailed to the Human Sciences Project. (Two pads per class)	End-of-module evaluation periods (Task 5)
Mailer	One mailer is provided to return the machine scorable My Activity Record and Objective Problems forms.	Mail as soon as possible after you have checked each paper for accuracy.

EVALUATION DESIGN FOR FEELING FIT

The evaluation procedures and materials for FEELING FIT are designed to provide students with products that can be used for self-evaluation and as a data base for you and your students to make judgments about grades. Both objective and subjective data are included in this data base.

The basic issue you and your students must resolve is whether evaluation must result in a single grade or can be descriptive of accomplishments. If a single grade is to be derived, a decision must be made as to whether the grade will be referenced to individual growth and development or will be normative, based on comparisons of each student's work with the norms of the class group or some other reference group. The evaluation materials for FEELING FIT may be used in either of those contexts, but the use will differ in each. Both you and your students need to have the same defined point of view about the basis for the kinds of evaluation data to be used and the uses to which these data will be put.

The next question to be resolved, and it may only be resolved empirically, is the tension between quality and quantity. How can these two dimensions of everything you and your students do in class be determined? These two questions are presented in relation to each item in the evaluation materials. Figure 1 shows the relationships of the different evaluation materials to determining the quality and quantity of student accomplishments.

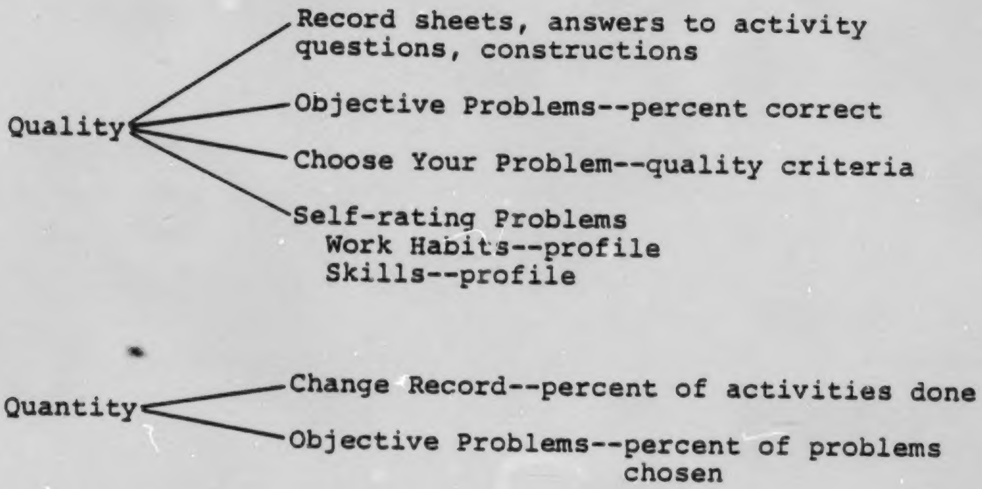
Record sheets, answers to activity questions, constructions
Objective Problems--percent correct
Quality
Choose Your Problem--quality criteria
Self-rating Problems
Work Habits--profile
Skills--profile
Change Record--percent of activities done
Quantity
Objective Problems--percent of problems chosen

Figure 1. Schematic relations of evaluation data to quality and quantity.

MECHANICS OF THE EVALUATION PROCESS

TASK 1: FEELING FIT FOLDER

The "FEELING FIT Folder" is to aid students in executing their responsibility for record keeping. The Folder is for student-teacher-parent use. When completed, it should include an accurate record of the activities for which each student has accepted accountability. As each activity is "done" by the student, YES should be circled in the Folder. After work has been completed at the termination of the module, each student should have the opportunity to review all activities with YES circled. At this time every activity in the Folder should have the YES or NO circled. This active response for each activity is important.

Each activity title has space for a short response to the question posed by the respective problem area: What Makes Me Healthy? How Does My Health Depend on Others? and How Does My Community Protect My Health? The student's response is to help him or her try to distill one major idea from each activity. It is also there to provide you and the other "publics" who may look at the Folder with clues to the student's thinking.

The Folder has a pocket for students to save samples of their best work from the module. These materials along with the materials from the formal evaluation tasks serve as the written source of materials for evaluation and grading. Your judgment and that of each student also becomes important components of translating data into grades when that is necessary.

TASK 2: MY ACTIVITY RECORD

Students will need their "FEELING FIT Folder," their "Student Guide to FEELING FIT," and access to the module and the books included with the module. Since they will be recovering data from the full module, encourage them to go to the module to look at an activity if they have doubts about whether or not they completed it.

The next task (Task 2) is to complete the machine scorable form, "My Activity Record." Care and accuracy are essential to this task. When all students have completed the forms, you might have them exchange papers to check each other's accuracy. Here are some check points.

- Name, teacher, and date are legible.
- Every activity and every book title has one and only one mark: 1, 2, 3, 4, 5, or 6.
- Number 7 should not be marked.
- Erasures are clean.
- The page is not wrinkled or torn.

Emphasize to students that this activity will not be a permanent part of the Human Sciences Program, but that it is needed because these are test materials. The marks they make for each activity are used when the Human Sciences staff begins to review materials.

Collect these papers and have a committee of two or three students recheck them, or recheck them yourself, before mailing.

TASK 3: OBJECTIVE PROBLEMS

Distribute the "Problems to Solve" booklets. The "Problems to Solve" booklets contain three sets of Objective Problems, a set of "Choose Your Problems," and "Self-rating Problems."

The three Objective Problems sets are labeled Evaluation Period 4, Evaluation Period 5, and Evaluation Period 6. These designations coincide with the graph notations in "Mapping My Progress in Human Sciences, Level III." They may be completed in one or more periods as required. Students will need to mark their responses and write reasons in the booklet before they transfer answers to the appropriate Objective Problems machine scorable form.

You may wish to make the machine scorable forms available to let students transfer answers on an item by item basis. You may wish to hold the form until one Objective Problem set is completed. Then, the appropriate Objective Problem form could be issued for transfer of data. You might talk about the problem with students and let them decide the way the task can be managed in the most pleasing way. The goal is accurate transfer of data from the booklet to the form.

The machine scorable forms again need to be checked before mailing. You can use the procedures described in Task 2 if you wish. The only difference in the criteria are that marks of Number 7 are to be used, but there should be no Number 6's marked.

TASK 4: SELF-RATING PROBLEMS

The materials for Task 4 are in the "Problems to Solve" booklet. This task is the completion of "Self-rating problems." The scales in this set of problems are to formalize self-judgment (the student) and external judgment (yours) regarding the students' development of social competencies, responsibility for learning, contributions to maintaining a high quality learning environment, and skills.

Each student should plot his or her response to the items in the scale. For this module, transfer of information from the "Self-rating problems" to a machine scorable form is requested. The form may be on one side of a form for Objective Problems, but it may be a completely separate form. At this writing it is planned to be on the same form as "Objective Problems, Evaluation Period 5."

Part of Task 3 is transfer of student responses to the machine scorable form. Again please use some checking procedure to assertain the accuracy of the transfer.

The "Self-rating Problems" sheet should be removed from the "Problems to Solve" booklet and added to "Mapping My Progress in Human Sciences, Level III." (See Task 6)

TASK 5: CHOOSE YOUR PROBLEM

The short-answer essay or drawing problems are included in the "Problems to Solve" booklet. In addition to the booklet, students will need two sets of "Choose Your Problem Work Sheets," A set of work sheets consists of one white sheet, Copy 1, and one yellow sheet, Copy 2, of NCR paper.

Encourage students to organize their thoughts by practicing or outlining on scratch paper before using the NCR paper. Help them develop a sense of pride in what they will record.

Students are asked to choose two "Choose Your Problems." Each one is to be answered on one set of NCR forms.

When this task is completed, Copy 1 (white) should be retained by you or the student. Copy 2 (yellow) should be checked and then mailed to the Human Sciences Project.

TASK 6: SCORING AND PLOTTING OBJECTIVE PROBLEMS

Keys to the Objective Problems will be mailed to you separately. You may wish to score the problems yourself or have students assist you. Following scoring, students will need their "Mapping My Progress in Human Sciences, Level III" booklets.

Have students record the module title, FEELING FIT, in spaces 4, 5, and 6 on page 2 of the chart, Key to Evaluation Periods. Have students write in the appropriate problem areas (Use the order in the Folder, even if problem areas were not studied in that order.

They will need to perform the calculations for percent of activities, as shown at the bottom of page 2, on scratch paper. They will need to do this for each of the three problem areas, using their "FEELING FIT Folders" as a data source. They can then plot their percentages on the graph on page 3.

Before you have them proceed to page 4, have them make their interpretation of what the graph means, now that it has six points. This will provide you with another opportunity to help students understand the necessity to interpret graphed data.

Have students fill in the module title and problem area columns for the table on page 4. The column "Problem Area" on the chart is really not applicable for this module. They should write in Evaluation Period 4 Problems, etc., in this column.

Again, students will need to carry out their calculations on separate paper. They may or may not need to follow the model of calculations on page 4.

Interpretation of the graph with two lines, six points each, is the last phase of the evaluation activities. However, this is an opportune time to have students reduce all of their evaluation materials to a grade for the module, if grading is required.

The Self-rating Problems sheet can be removed from the Problems to Solve booklet and attached to the "Mapping My Progress in Human Sciences, Level III" booklet. Comparisons on the Work Habits section might be appropriate in individual student-parent conferences.

SUMMARY

STUDENTS WILL COMPLETE:	DESTINATION:
FEELING FIT Folder	Student
*My Activity Record	Human Sciences Project
Problems to Solve booklet	Student
*Objective Problems: Evaluation Period 4, Evaluation Period 5	Human Sciences Project
*Objective Problems: Evaluation Period 6, Self-rating Problems	Human Sciences Project
Choose Your Problem Work Sheets:	
Copy 1	Student
*Copy 2	Human Sciences Project

Be sure to mail starred (*) items (1 each per student) to the Human Sciences Project.

FEELING FIT

A
Student Guide for
Self-Evaluation

Experimental Edition, 1976
Human Sciences Program

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INTRODUCTION

All of the evaluation activities for FEELING FIT will be done when you have completed the module. The Problems to Solve booklet is divided into sections for different activities. In addition to the Problems to Solve activities, you will need to do other tasks to provide data to the Human Sciences Project. We, too, are evaluating ourselves and the materials we are providing to you in the Human Sciences Program. The information you send to us on the machine-scored forms is our main source of information.

TASK 1: MY ACTIVITY RECORD

You will need your FEELING FIT Folder as a reference for this task. Your teacher will give you one machine-scored form, "My Activity Record," to be filled out. Use a No. 2 pencil to mark your responses. The machine won't "read" ink!

Please check to be sure you have marked each activity and each book title with one and only one mark. Column 7 should not be marked.

TASK 2: OBJECTIVE PROBLEMS

You will need your copy of the "Problems to Solve" booklet for this task.

Objective Problems are in three parts, labeled Evaluation Period 4, Evaluation Period 5, and Evaluation Period 6.

The Objective Problems are grouped by the activities they are related to. You may choose any and/or all problems. Do not guess.

Your goal for these problems is to show how much you have learned. But you need to think about what learning can mean. Human Sciences has goals that include developing logical thinking, skills in problem-solving and decision-making, as well as learning about the specific subjects of the activities you choose. Your skill development in decision-making is partly reflected by the problems you choose. Choose problems you can answer with confidence. Try to get the highest number of correct answers as you can.

Many activities do not have Objective Problems. Your accomplishments on these activities are assessed by Choose Your Problems.

Many of you are having trouble giving a reason for your choice on the Objective Problems. This time, we ask that you give a reason for marking Number 7, I did not choose the problem, too. We are asking this because many times you have done the activity related to the problem, but didn't choose the problem. We would like to know why!

It may be hard to think about the reason for choosing a response. What we would like to know is how you arrived at your choice. For example, here is one problem from CHANGE.

10. Laurie burned 10 g of peanuts in a calorimeter. The heat produced raised 10 g of water 2°C. How many calories did the peanuts produce?

1. 20
2. 100
3. 200
4. 12
5. 22
7. I did not choose this problem.

Reason: ______________________________________

If you chose #1, 20, your reason might have been, "A calorie is the amount of energy it takes to raise 1 g of water 1°C, so 10 g of water x 2°C = 20 calories."

If you chose #3, 200, your reason might have been, "to get calories you multiply 10 g of peanuts x 10 g of water, x 2°C."

Here is one more example.

11. What change in hills and mountains is most like the change caused in "Rock Around"?

1. volcanos
2. earthquakes
3. running water
4. winds
5. landslides
7. I did not choose this problem.

Reason: ______________________________________

If you chose #1, volcanos, your reason might have been, "Rocks get thrown out of volcanos and rocks were thrown around in the activity." If you chose #3, running water, your reason might have been, "Because rocks in the activity were worn down by tumbling them in water, like a stream rolls rocks."

TASK 3: CHOOSE YOUR PROBLEM

"Choose Your Problems" are grouped so you can see which problems are general, which are related to specific activities, and which are for those who wrote their own activities. You can use any activities in responding to the "general" category problems. Choose two "Choose Your Problems." Choose the most difficult problems you can solve. The choice of problem and your answer should represent the best work you can do. Be sure you answer each problem completely. Practice writing your answers on scratch paper before you write them on the Choose Your Problem Work Sheets. You will need one set of Choose Your Problem Work Sheets--white, Copy 1, and yellow, Copy 2--for your answer for each problem.

Remember, your written response to each "Choose Your Problem" is to communicate to someone else what you meant.

TASK 4: SELF-RATING PROBLEMS

Self-rating Problems are in two groups: Work Habits and Skills Development. Both you and your teacher will respond to these problems. Directions are on the problem sheets.

TASK 5: TRANSFERRING DATA TO MACHINE-SCORED SHEETS

At some time during the class periods devoted to evaluation activities, your "Objective Problems" data need to be transferred to machine-scored forms. There are two forms that your teacher will make available to you. One form is labeled "Objective Problems, Evaluation Period 4," on one side. Transfer your choices and reasons from the 15 problems in your "Problems to Solve Booklet for Evaluation, Period 4" to this page. The back side is for "Objective Problems, Evaluation Period 5."

The second form has one side for transferring your responses from "Objective Problems, Evaluation Period 6." You have done this task before, so you probably know how to do it.

The new part of this task in FEELING FIT is on a separate machine-scored form with the title "Self-rating Problems." Please transfer your Self-rating Problems to this form. Be sure to mark both sides. We also need this information as part of our own evaluation.

Thanks very much for doing this task carefully!

TASK 6: MAPPING MY PROGRESS

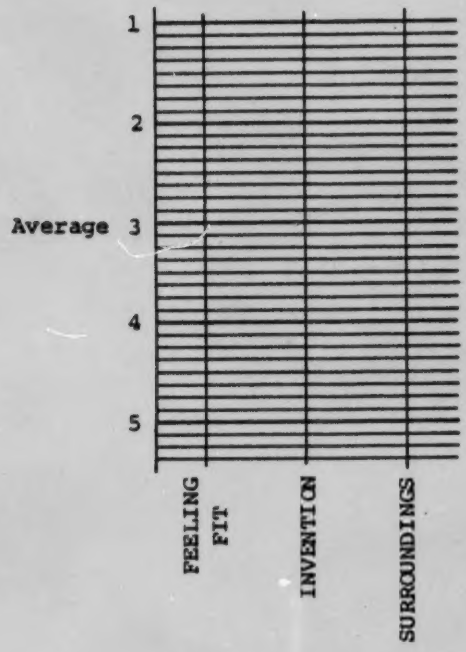
After your Objective Problems have been scored, you can turn to your "Mapping My Progress" booklet. Make the necessary calculations and graph your data with the interpretation requested. New pages are included with this module to add to your "Mapping My Progress" booklet. These are pages 7, 8, 9 and 10. They are provided to enable you to map your progress on the two parts of the Self-rating Problems. Directions for calculating and completing this new section are provided on the pages themselves.

You have now produced evaluation records in addition to the activity products you have kept in your FEELING FIT Folder. These are: one Activity Accountability score, three Objective Problems scores, two Choose Your Problems responses, and three scores from your Self-rating Problems. These scores and records are data from which you and your teacher can determine your grade for the module.

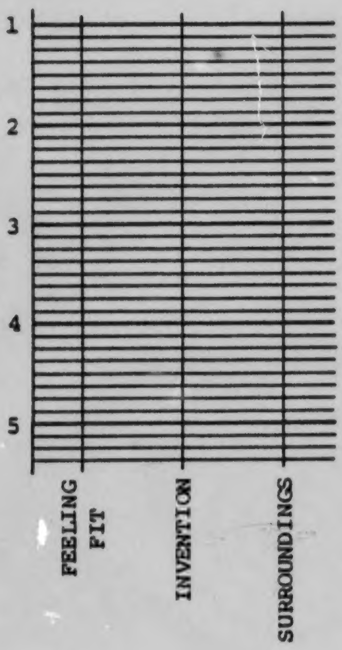
Mapping My Progress In Human Sciences, Level III
Supplement I.

Self-rating Graphs

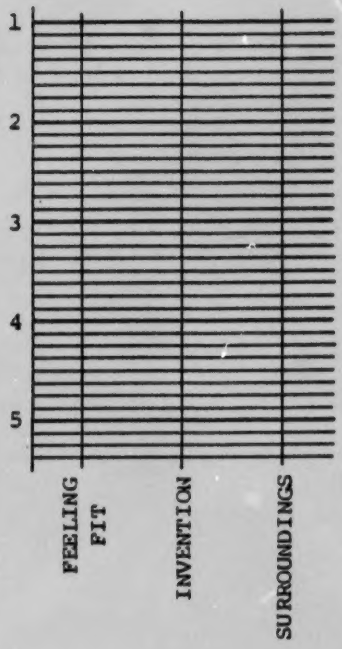
Development of personal work habits and a variety of skills are part of the goals of Human Sciences. The three graphs below will make a display of your progress in these important areas. Use the averages you calculated in your Problems to Solve booklet to prepare your graphs.



I. Average Work Habits Scores



II. Change in the Average Work Habits Scores



III. Average Skills Development Scores

Evaluation Period 6 Problems:

1. How do you feel about your Average Work Habits score for FEELING FIT? ____
____

2. What things that are not under your control have affected your average score? ____
____

3. What do you propose to do about them (your answer to 2, above) before you start the next module? ________________
____
____
____

4. What do you want your Average Work Habits score to be for the next module, INVENTION? ________ How do you plan to accomplish this goal? ____
____
____

5. Explain your Average Change in Work Habits Score.
____
____
____

6. How do you feel about your Average Skills Development Score for FEELING FIT? ____
____
____

7. What do you want your Average Skills Development Score to be at the end of INVENTION? _______ How do you plan to accomplish this goal? ____________________

____

____

8. Assign yourself a letter grade for Work Habits _______. Give reasons for your grade. ____________________

____

____

9. Assign yourself a letter grade for Skills Development. _______ Give reasons for your grade. ____________________

____

____

Evaluation Period 9 Problems:

8. Did you meet your goal for your Average Work Habits Score you put down in Problem 4? ______ Explain: _________

____

____

9. Interpret your graph, Average Change in Work Habits.

____

____

____

422

10. Explain any differences between your goal for skills development (Problem 7) and your Average Skills Development Score for INVENTION. ______________________________

____

____

11. Assign yourself a grade for Work Habits in the INVENTION module. ________

12. Assign yourself a grade for Skills Development in the INVENTION module. ________

Evaluation Period 12 Problems:

13. Look at graphs I and II. Assign yourself a grade for Work Habits for SURROUNDINGS. ________ Give reasons for the grade you assigned. ______________________

____

____

____

14. Look at graph III. Assign yourself a grade for Skills Development for SURROUNDINGS. ________ Give reasons for the grade you assigned. ________________________

____

____

____

FEELING FIT

Name ______________________________

Teacher ___________________________

Date ______________________________

PROBLEMS TO SOLVE

1. Objective Problems

    Evaluation Period 4
    Evaluation Period 5
    Evaluation Period 6

2. Choose Your Problem

3. Self-rating Problems

Human Sciences Program
Level III
Experimental Edition, 1976

INTRODUCTION

This booklet contains the five evaluation activities for FEELING FIT. There are three sets of Objective Problems, a set of Choose Your Problems, and a Self-rating section. Your teacher will help decide how many of the activities you will need to complete in a class period.

OBJECTIVE PROBLEMS: EVALUATION PERIOD 4

Directions

Read each problem carefully. If you do not choose to answer a problem, circle response 7. If you choose to answer a problem, circle the one number of the best answer.

Be careful, several answers may be true, but one answer is best. The best answer may include more correct information, it may be more accurate, or more exact. Think before you circle your response.

To help you choose, the activities each problem is related to are listed with the problems. Answer as many problems as you can.

Write your reason for your choice of answer even if you marked 7. Many of you are not choosing a problem even when you did the activity about the problem. We need to know if you didn't understand the question, didn't know the answer, or what other reason you had for not choosing the question. Writing your reason will help us write better problems.

When you have completed answering the 15 problems, record your answers and reasons on the separate answer sheet labeled "Objective Problems: Evaluation Period 4." This booklet is for you. The answer sheet will be sent to BSCS.

OBJECTIVE PROBLEMS: EVALUATION PERIOD 4

Activity: Personal Health Inventory

---

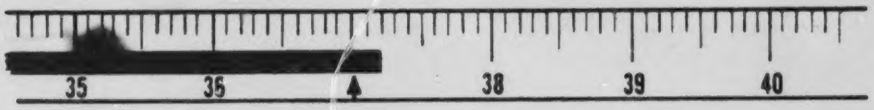
1. Which way to find a person's average body temperature will give the most accurate results?

    1. Take five readings at five minute intervals. The middle reading is the most accurate one.
    2. Take five readings on five different days. The average of the five readings is the most accurate one.
    3. Take one reading when a person is well. A single reading is the most accurate one.
    4. Take three readings at two hour intervals on one day. The average of the three readings is the most accurate one.
    7. I did not choose this problem.

Reason: ______________________________

---

2. This drawing shows part of a clinical thermometer.



The temperature shown is ______. (Please fill in the blank, not the machine scored column.)

Reason: ______________________________

Activity: Blood Pressure, Smoking and You, Rhythms of a Healthy Heart

3. A student taking blood pressure saw and heard the following information in the order it is listed.

Sounds	Pressure Dial Reading	Sounds	Pressure Dial Reading
none	120	swish, swish	98
none	118	swish, swish	96
faint taps	116	swish, swish	94
tap, tap, tap	114	swish, swish	92
tap, tap, tap	112	swish, swish	90
tap, tap, tap	110	swish, swish	88
tap, tap, tap	108	swish, swish	86
tap, tap, tap	106	faint swishing	84
tap, tap, tap	104	none	82
swish, swish	102	none	80
swish, swish	100	none	78

The correct blood pressure is:

1. 116/82
2. 102/86
3. 114/82
4. 118/84
5. 120/80
7. I did not choose this problem.

Reason: ______________________________

4. Judy and Terri are both 13 years old. Judy's blood pressure measured 93/66. Terri's blood pressure measured 109/77. Both measurements were taken under the same conditions.

1. Something is probably wrong, girls the same age should have the same blood pressure.
2. Something is probably wrong, kids 13 don't have blood pressure as low as 66.
3. The measurements are reasonable, normal blood pressure varies from person to person.
4. The measurements are reasonable, blood pressure differences have to be larger than 20 to be a problem.
7. I did not choose this problem.

Reason: ______________________________

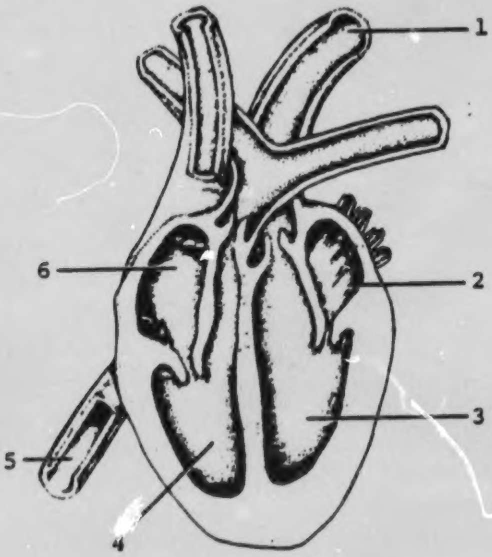
5. The heart

1. purifies and pumps the blood.
2. purifies, but doesn't pump the blood.
3. pumps, but doesn't purify the blood.
4. neither purifies nor pumps the blood.
7. I did not choose this problem.

Reason: ______________________

Activity: Rhythms of a Healthy Heart

6.



What happens to blood in Part 1?

1. It goes to the body.
2. It goes into the heart.
3. It goes to the lungs.
4. It goes to the liver.
7. I did not choose this problem.

Reason: ______________________

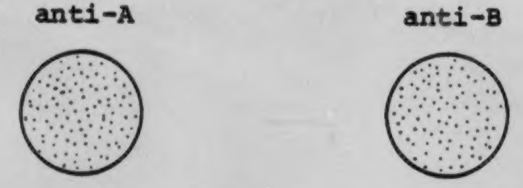
7. If a person's blood pressure drops rapidly, which body part is probably failing?

1. lungs
2. kidneys
3. blood
4. heart
5. brain
7. I did not choose this problem.

Reason: ______________________

Activity: Blood Tests and Examinations

8. Karen placed a drop of her blood in each of the two kinds of blood typing serums. In a few minutes, the slide looked like this.



Her blood type is:

1. A
2. B
3. AB
4. 0
7. I did not choose this problem.

Reason: ____________________

9. Blood types are important to know because people with different blood types

1. shouldn't marry each other.
2. shouldn't give transfusions to each other.
3. have different blood clotting times.
4. are likely to get different dieseases.
7. I did not choose this problem.

Reason: ____________________

Activity: Blood Tests and Examinations, What's Wrong With This Blood

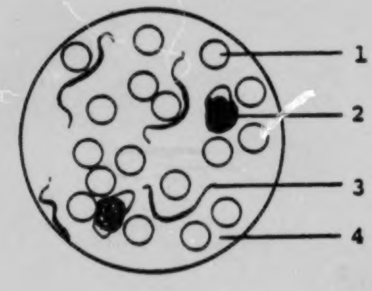
---

10. The most accurate description of blood is

    1. blood is a red-colored liquid that has germs in it when you get sick.
    2. blood is a yellow-colored liquid with many kinds of cells in it.
    3. blood is a red-colored liquid with many kinds of cells in it.
    4. blood is a liquid that changes from bluish to red after is passes through the heart and lungs.
    7. I did not choose this problem.

Reason: ______________________________

11.



Which part is not a part of normal blood from a healthy person?

1. 1
2. 2
3. 3
4. 4
7. I did not choose this problem.

Reason: ____________________

Activity: Breaking Unhealthy Habits

---

12. Joe was 40 pounds overweight. He decided that he wanted to lose weight. His goal was to lose 24 pounds in the next year.

    A better plan would be to change his goal to losing

    1. 1 pound each two weeks.
    2. 6 pounds each three months.
    3. 40 pounds in the next year.
    4. 4 pounds each month.
    7. I did not choose this problem.

Reason: ______________________________

Activity: How Fast Can You React?

---

13. Ken had a problem. He wanted to measure the time it took his model car racer to go one foot. The problem was the racer went further than one foot in a second, and one second was the smallest time unit on his clock. What should Ken do if he really wants to solve the problem?

    1. Estimate the part of a second the racer takes to go one foot.
    2. Measure the part of a second the racer takes to go one foot on several trials and calculate the average.
    3. Time the racer for a twenty-foot run and divide by twenty.
    4. Get a more accurate clock. That's the only way to get an accurate measurement.
    7. I did not choose this problem.

Reason: ______________________________

Activity: Coffee and Me

---

14. A diuretic is a substance that

    1. produces heavy sweating.
    2. keeps people from going to sleep easily.
    3. reduces the pain of headaches.
    4. causes urine to be produced.
    7. I did not choose this problem.

Reason: ______________________________

Activity: Sensible Reducing and Weight Control

---

15. Diane, age 13, weighed 140 pounds. She planned a diet that averaged 3,280 calories per day. If Diane follows the diet carefully she will

    1. lose about 1 pound per week.
    2. gain about 1 pound per week.
    3. stay about the same weight.
    4. gain weight rapidly.
    5. lose weight rapidly.
    7. I did not choose this problem.

Reason: ______________________________

OBJECTIVE PROBLEMS: EVALUATION PERIOD 5

Directions

Read each problem carefully. If you do not choose to answer a problem, circle response 7. If you choose to answer a problem circle the one number of the best answer.

Be careful, several answers may be true, but one answer is best. The best answer may include more correct information, it may be more accurate, or more exact. Think before you circle your response.

To help you choose, the activities each problem is related to are listed with the problems. Answer as many problems as you can.

Write your reason for your choice of answer even if you marked 7. Many of you are not choosing a problem even when you did the activity about the problem. We need to know if you didn't understand the question, didn't know the answer, or what other reason you had for not choosing the question. Writing your reason will help us write better problems.

When you have completed answering the 15 problems, record your answers and reasons on the separate answer sheet labeled "Objective Problems: Evaluation Period 5." This booklet is for you. The answer sheet will be sent to BSCS.

OBJECTIVE PROBLEMS: EVALUATION PERIOD 5

Activity: Looking Into the Stomach

---

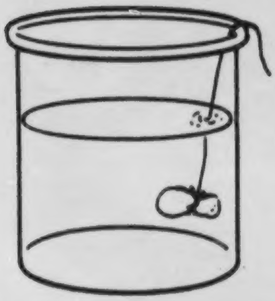
16. "Digested" means being

1. reduced to small pieces that can be seen.
2. broken into pieces that are too small to see.
3. carefully chewed, swallowed and digested in the stomach.
4. ground up into little bits in the stomach and intestines.
7. I did not choose this problem.

Reason: ____

---

17. A piece of egg white was tied to a string and placed in a solution of pepsin and hydrocholoric acid in a beaker. If, after a few hours, the egg white is completely digested, what would you see?

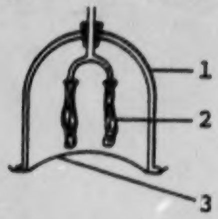


1. nothing on the string and there would be no solid pieces in the beaker.
2. nothing on the string but there would be pieces of egg white on the bottom of the beaker.
3. a small piece of egg white on the string and nothing on the bottom of the beaker.
4. a small piece of egg white on the string and small pieces of egg white on the bottom of the beaker.
7. I did not choose this problem.

Reason: ____

Activity: Working Lungs

This is a diagram of a model of part of the human body.



18. Part 3 represents the ___________ in the human body. (Please fill in the blank, not the machine scored column.)

Reason: ____

---

19. The model is set up to show how parts 1, 2, and 3 are arranged in a person. Look carefully at the parts. They represent a person who would have

1. breathed deeply.
2. inhaled.
3. exhaled.
4. created suction.
7. I did not choose this problem.

Reason: ____

Activity: Where's Your Plaque?

---

20. Tom gathered data to find his Modified Oral Hygiene Index (MOHI). He recorded scores for ten teeth. The scores were:

	Tooth 1	Tooth 2	Tooth 3	Tooth 4	Tooth 5
Front side	2	3	2	2	3
Back side	1	3	3	3	2

Tom's MOHI score is _____. (Please fill in the blank, not the machine scored column.)

Reason: ____

21. Look at the data on the preceding page. What should Tom do?

1. Continue his tooth care without change, he has an excellent score.
2. Brush his teeth longer, his score is average.
3. Brush his teeth longer and more carefully, his score is very poor.
4. Go to a dental specialist to learn how to care for his teeth, his score is as bad as it can get.
7. I did not choose this problem.

Reason: ______________________________

Activity: How Do Glasses Correct for Farsightedness and Nearsightedness?

22. If your eye is working properly, the image that comes through the lens will be focused

1. a little in front of the retina.
2. a little behind the retina.
3. on the retina.
7. I did not choose this problem.

Reason: ______________________________

Activity: The Immunology Game

23. The body protects itself from disease by producing

1. antibodies.
2. vaccines.
3. vitamins.
4. antibiotics.
7. I did not choose this problem.

Reason: ______________________________

---

24. Mary was trying to explain to her friend what immunity means. Which statement is the most accurate explanation? "Immunity means that a person has:

    1. inherited protection against disease such as distemper."
    2. body defenses that protect against diseases.
    3. had vaccinations to prevent diseases."
    4. had diseases and will not get them again."
    7. I did not choose this problem.

Reason: ____

Activity: Pets and People

---

25. Which disease can people catch from their pets?

    1. smallpox
    2. leukemia
    3. chickenpox
    4. malaria
    5. rabies
    7. I did not choose this problem.

Reason: ____

Activity: Why Do People Have Skin Problems?

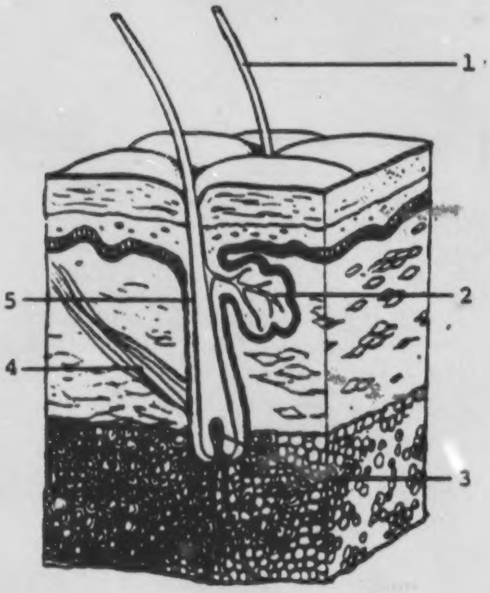
---

26. Which statement below is the most accurate statement about acne?

    1. Acne can be prevented if teenagers would just stop eating greasy foods.
    2. Acne can be prevented if teenagers would just wash their skin carefully.
    3. Acne can be prevented if teenagers would stop using soft drinks and foods with sugar.
    4. Acne can be helped but not always prevented even with the best possible care.
    7. I did not choose this problem.

Reason: ____

27.



Look at the diagram. The part where acne develops is

1. 1
2. 2
3. 3
4. 4
5. 5
7. I did not choose this problem.

Reason: ______________________

____

____

Activity: Will Your Career Affect Your Ear?

28. Timmy suffered a hearing loss of 25% between the ages of 11 and 16. His hearing will

1. gradually get worse as he gets older.
2. gradually get better until he's about 30 years old.
3. stay the same until he gets very old--over 70.
4. improve if he stays away from loud noises.
7. I did not choose this problem.

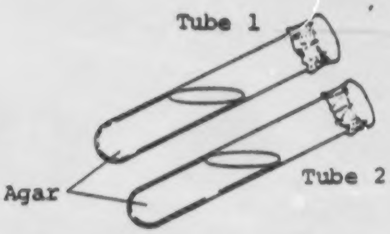
Reason: ______________________

Activity: Trapping the Wild Microbe

---

29. Sandy placed tubes 1 and 2 in a pressure cooker and heated them for 18 minutes. She rubbed a sterile swab over her teeth and then rubbed the swab over the surface of tube 1. She placed both tubes in a warm dark place.

Two days later, Sandy saw yellowish-white spots under the agar along the glass on both tubes. There were also yellowish-white spots on the surface of tube 1. Which interpretation of what Sandy observed is most accurate?



1. The tubes were not properly sterilized.
2. The yellowish-white spots formed when the tubes cooled.
3. Sandy had bacteria on her teeth.
4. The lids were accidentally knocked off both tubes for awhile.
7. I did not choose this problem.

Reason: ______________________________

---

30. The best reason for using two tubes was

1. when working with bacteria you need two tubes.
2. the directions probably said to use two tubes.
3. to be sure the tubes were free of live bacteria at the start.
4. to be sure to have an experiment that would work.
7. I did not choose this problem.

Reason: ______________________________

OBJECTIVE PROBLEMS: EVALUATION PERIOD 6

Directions

Read each problem carefully. If you do not choose to answer a problem, circle response 7. If you choose to answer a problem, circle the one number of the best answer.

Be careful, several answers may be true, but one answer is best. The best answer may include more correct information, it may be more accurate, or more exact. Think before you circle your response.

To help you choose, the activities each problem is related to are listed with the problems. Answer as many problems as you can.

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When you have completed answering the 15 problems, record your answers and reasons on the separate answer sheet labeled "Objective Problems: Evaluation Period 6." This booklet is for you. The answer sheet will be sent to BSCS.

OBJECTIVE PROBLEMS: EVALUATION PERIOD 6

Activity: Venereal Disease

---

31. Syphilis microorganisms

    1. spread throughout the reproduction organs.
    2. stay in the area where the germ entered the body.
    3. spread into the blood.
    4. spread throughout the body.
    7. I did not choose this problem.

Reason: ______________________________

---

32. Venereal diseases

    1. can nearly always be prevented by vaccination.
    2. can nearly always be cured if treated soon after infection occurs.
    3. are expensive to treat, but can usually be cured.
    4. are difficult to treat, but the treatment costs little.
    7. I did not choose this problem.

Reason: ______________________________

---

33. An example of venereal disease is

    1. gonorrhea.
    2. hepatitis.
    3. mononucleosis.
    4. microorganisms.
    7. I did not choose this problem.

Reason: ______________________________

---

34. Venereal diseases are contagious and almost always spread through

    1. public restrooms.
    2. sexual intercourse.
    3. needles used by narcotics addicts.
    4. too much kissing.
    7. I did not choose this problem.

Reason: ______________________________

Activity: Folk Medicine: Then and Now

35. Vaccination for smallpox was an improvement over innoculation because vaccination was

    1. less expensive than innoculation.
    2. more certain in providing immunity than innoculation.
    3. easier for the doctor to perform than innoculation.
    4. less dangerous to the patient than innoculation.
    7. I did not choose this problem.

Reason: ______________________________

36. Which disease once killed many children but is now rare?

    1. chicken pox
    2. smallpox
    3. cow pox
    4. malaria
    7. I did not choose this problem.

Reason: ______________________________

Activity: Geography of Life and Death

37. A country had a population of 1 million people in 1975. The death rate was 1,640 per 100,000 population that year. How many people died in the country in 1975?

    1. There isn't enough data given to answer the question.
    2. 100,000
    3. 1975
    4. 16,400
    5. 1,640 divided by 100,000
    7. I did not choose this problem.

Reason: ______________________________

Activity: Sewage Treatment

38. The purpose of primary treatment of sewage is to remove

    1. solid materials.
    2. organic wastes.
    3. harmful bacteria.
    4. odors.
    7. I did not choose this problem.

Reason: ______________________________

Activity: How Clean Is Your Air?

---

39. Chuck was trying to find the number of air particles that would fall on a surface. He put a thick layer of vaseline on four standard microscope slides. He placed the slides, grease side up, on the outside window sills of the north, east, south, and west sides of his home.

Which statement is the best statement about experimental control and what Chuck did?

1. Chuck has a controlled experiment, the slides in four places act as the control.
2. Chuck needs a control, he should have at least four slides at each location.
3. Chuck needs a control, he should have one vaseline-coated slide sealed in a jar at each location.
4. Chuck has a control, he used glass slides that were the same size at each location.
7. I did not choose this problem.

Reason: ______________________________

Activity: How Long Do People Live?

40.

	1901-1950
	68
	71
	69
	45
	53
	74
	81
	76
	26
	75
	72
	66
	61
	68
	55
	65
	77
	70
	57
	72
Total	1,301
Average	65

At the left is a list of age-at-death figures taken from cemetery head stones. The life expectancy of the group shown is:

1. 81
2. 1,301
3. 26
4. 65
7. I did not choose this problem.

Reason: ______________________________

____

____

Activity: The Modern Medicine Show

Brent went to his corner drugstore to buy medicine for relief from minor pain. He compared the following over-the-counter medicines.

Name Brand	Ingredients in grams per tablet		
	Aspirin	Caffeine	Cost per 100 tablets
Alka-Seltzer®	5.00		$3.16
Anacin®	6.17	0.50	$1.15
Bayer Aspirin®	5.00		$ .83
Bufferin®	5.00		$1.19
Worthmore®	5.00		$ .33

41. Which medicine would you recommend he buy?

1. Alka-Seltzer®
2. Anacin®
3. Bayer Aspirin®
4. Bufferin®
5. Worthmore®
7. I did not choose this problem.

Reason: ______________________________

---

42. Which reason supports your recommendation?

The brand I recommend

1. has a better pain reliever than others.
2. acts faster than the others.
3. is cheaper and is just as good as the others.
4. is easier on the stomach than others.
5. has a better reputation than the others.
7. I did not choose this problem.

Reason: ______________________________

Activity: Where Can You Get Help? Emergency Care in Your City

---

43. Health care in a community is

    1. completely provided for by doctors and hospitals.
    2. shared by doctors, the hospital, and the fire department.
    3. the responsibility of a large number of agencies.
    4. the complete responsibility of the health department.
    7. I did not choose this problem.

Reason: ______________________________

Activity: Drugs: What Do You Think?

---

44. One of the four lists below includes a substance that is not classed as a drug. Which list is it?

    1. heroin, cocaine, histamine
    2. nicotine, mescaline, nembutol
    3. LSD, marihuana, benzedrine
    4. alcohol, LSD, heroin
    7. I did not choose this problem.

Reason: ______________________________

Activity: Be a Disease Detective

---

45. Which of the following is not useful information to an epidemiologist studying a disease?

    1. Symptoms of the disease.
    2. Names of people infected by the disease.
    3. Age groups most affected by the disease.
    4. Months of the year in which the disease is most common.
    7. I did not choose this problem.

Reason: ______________________________

Choose Your Problem

Select any two of the following problems. Copy the item letter and the underlined words of the problems you choose on the "Choose Your Problem Work Sheet." Be sure to write or draw with enough pressure to make a good second copy.

Activity: Any Activity

A. Were there some important things that you learned about in FEELING FIT that were not included in Objective Problems? Write enough detail for anyone to understand two things you learned.

B. Write a short story about what it's like to be in Human Sciences. Include both advantages and disadvantages if you can.

C. Explain how being interested in a particular activity was important to what you learned. Write enough to convince a reader that interest was important. Also tell what you learned because of interest.

D. What does being in good health--feeling fit--mean to you? Include as many different ideas in your answer as you can. In a short sentence, explain what each of your ideas means.

E. Explain how you feel about the activities you completed and are accountable for in FEELING FIT.

What would you say to a person who said, "How you feel about school work is not important, what did you learn?"

PERSON NUMBER	AVERAGE BLOOD PRESSURE AFTER 24 HOURS WITHOUT COFFEE	BLOOD PRESSURE 30 MINUTES AFTER DRINKING STRONG COFFEE	BLOOD PRESSURE 60 MINUTES AFTER DRINKING STRONG COFFEE
1	122/80	124/81	125/82
2	118/80	118/79	118/81
3	125/84	125/84	127/85
4	137/82	136/82	138/83
5	119/86	119/86	118/86
6	120/85	122/86	121/85
7	123/80	124/80	123/81
8	122/78	123/79	124/80
9	127/82	127/82	127/82
10	130/85	131/85	130/85
Average	124.3/82.2	124.9/82.4	125.1/83.0

F. The average blood pressures of ten people, taken after 24 hours without coffee or similar substances, are shown in the column, "Average Blood Pressure." Each person drank one cup of strong coffee. Blood pressure was measured and recorded at 30 and 60 minutes after drinking the coffee.

1. What is your conclusion about the effect of coffee on blood pressure based on the data on the chart?

2. What reasons do you have for your conclusions?

G. Describe or make a drawing to show an important idea you learned in FEELING FIT. Your description or drawing should be clear enough for anyone reading or looking at your response to understand what you have learned.

Activity: Is Your Family Tree Healthy?

H. Name a serious family health problem that could be prevented if people in the family knew about it. How would the family help reduce or prevent the problem?

Activity: Your School Cafeteria

I. If you studied foods in your school cafeteria, what food group did you find was not eaten by most students? What was the most common reason given for not eating foods in this group? What do you think should be done about students not eating foods in this group? Why?

Activity: Pets and People

J. Do you agree or disagree with this statement: "Pets are neither good nor bad. They are neither a major problem nor do they benefit people." State whether you agree or disagree. Give your reasons for agreeing or disagreeing.

Activity: Aloneness Can Be Positive, Expressions of Loneliness, Send a Person to Coventry

K. Loneliness is a very personal experience. Describe, in detail, what the individual and social parts of loneliness mean to you.

L. Explain the differences between "being alone" and "loneliness" as you now understand them.

Activity: Geography of Life and Death

M. People are concerned about the environment. Does the environment affect death rates? Give evidence to support your answer.

Activity: Sewage Treatment, The Flush

N. Diagram the main steps in the treatment of sewage in your city. Write a brief explanation of your diagram.

Activity: Student Written. If you used a lot of class time on activities you or your classmates wrote yourselves, you may wish to choose from the following problems:

O. Write one important objective problem that someone doing the activity should be able to answer. Explain why you think the problem is important.

P. What did you find out from the activity? Include data you gathered, what you did, or made, etc., and what it means, your interpretation, of what you learned.

Q. Describe an experiment you designed. Tell what you wanted to find out, how you did the experiment, and what you found.

R. Write the title and explain an activity produced by a student. Why was this more important to you than activities from the module? How does the activity relate to the module?

FEELING FIT

Self-rating Problems

Circle the number where you would rate yourself on each statement in Column I. Circle the number in Column II that compares these work habits with your work habits in CHANGE.

Your teacher will make ratings, too, by putting an X on the rating scale.

	Column I. Work Habits During FEELING FIT					Column II. In Comparison to CHANGE, I have:				
	Most of the time	About half the time			Not often	Improved		About the same		Not as well
I work independently--I don't need to be supervised.	1	2	3	4	5	1	2	3	4	5
I try even if the reading is hard for me.	1	2	3	4	5	1	2	3	4	5
I do activities thoughtfully.	1	2	3	4	5	1	2	3	4	5
I choose another activity to do when I'm waiting for long-term things to happen.	1	2	3	4	5	1	2	3	4	5
I do my part of clean-up and management of materials.	1	2	3	4	5	1	2	3	4	5
I do my part when I work with others on an activity.	1	2	3	4	5	1	2	3	4	5
I start a new activity as soon as I finish one.	1	2	3	4	5	1	2	3	4	5
I read activities carefully before I start work on them.	1	2	3	4	5	1	2	3	4	5
I contribute to discussions about activities when I work with others.	1	2	3	4	5	1	2	3	4	5

	Column I. Work Habits During FEELING FIT					Column II. In Comparison to CHANGE, I have:				
	Most of the time		About half the time		Not often	Improved		About the same		Not as well
I try to help the group stay on the subject when we discuss activities.	1	2	3	4	5	1	2	3	4	5
When an activity I have started gets hard to do, I keep trying to figure it out.	1	2	3	4	5	1	2	3	4	5
I keep working on the activity I have chosen even when there are other interesting things going on in the class.	1	2	3	4	5	1	2	3	4	5

Calculating your average Work Habits Scores.

Column I. Add the 11 numbers you have circled in Column I. Put the number here. ________ Divide this number by 11, the number of statements. This is your average Work Habits Score. Put the number here. ________ Use only one decimal point in your calculations. The best score you could have is 1.0. The poorest score is 5.0. Calculate your teacher's rating in the same way. Record that average here. ________ Explain any differences in the two ratings.

Column II. Add the 11 numbers you circled in Column II. Put the score here. ________ Divide by 11. Put the average here. ________ Use only one decimal point in your calculations. The best score you could have is 1.0, the poorest score is 5.0.

FEELING FIT

Skills Development

Circle the number that expresses your opinion about each statement.

	Strongly Agree	Agree	?	Disagree	Strongly Disagree
I can read a thermometer accurately.	1	2	3	4	5
I can take blood pressure accurately with a sphygmomanometer.	1	2	3	4	5
I can use a microscope to see small things.	1	2	3	4	5
I am improving my skill in writing understandable answers to "Choose Your Problem."	1	2	3	4	5
I read parts of books and articles, because of activities I did in FEELING FIT.	1	2	3	4	5
I am learning how to make arrangements with adults to do activities in the community.	1	2	3	4	5
I am learning new things about careers in FEELING FIT that I didn't know about before.	1	2	3	4	5
I tried to change some of my habits that affect my health because of activities in FEELING FIT.	1	2	3	4	5
Add any skills you improved upon, during the module, that were important to you.	1	2	3	4	5

Calculating Your Average for Skills Development.

Add the numbers you have circled. There are eight statements, but if you wrote more statements, add these numbers, too. Write the total here.______ Divide the sum by 8, or, if you added statements, by the toal number of statements. Put your average here.______ Use only one decimal point in your calculations. What is the best score you could have? Why? What is the poorest score?

Calculate the average rating your teacher has made using the same problem. Put the sum here.______
Put the average here.______

MY ACTIVITY RECORD

Name ____________________

Teacher ____________________

Date ____________________

FEELING FIT

DIRECTIONS: Mark *each activity* by marking the number of the most correct

---

Do you want to be accountable for the activity?

if	YES	Mark 1 if you completed at least one part of the activity. Mark 2 if you completed all parts of the activity. Mark 3 if you learned by observing another's activity.
if	NO	Mark 4 if you haven't looked at it. Mark 5 if you haven't had time to do it. Mark 6 if you haven't wanted to do it.

Personal Health Inventory ....

Is Your Family Tree Healthy? ....

Blood Pressure ....

Blood Tests and Examinations ......

Rhythms of a Healthy Heart ....

What Is Wrong with This Blood? ....

Breaking Unhealthy Habits..........

Can You Achieve a Natural High? ...

How Fast Can You React? ....

Coffee and Me ....

Smoking and You ....

Working Lungs ....

Muscle Building ....

Muscle Relaxation..................

Looking into the Stomach ....

Sensible Reducing and Weight Control ....

Why Do People Have Skin Problems?

Where's Your Plaque? ....

Will Your Career Affect Your Ear? ..

How Do Glasses Correct for Farsightedness and Nearsightedness? ..

The Immunology Game.............

Aloneness Can Be Positive ....

Expressions of Loneliness...........

Send a Person to Coventry ....

My Life: Who Decides?............

Drugs: What Do You Think? ....

Stress: How Do You Cope? ....

Cigarette Advertising ....

Your School Cafeteria: A Case Study ....

Fooling the Senses with Food Substitutes ....

Hairy Investigations ....

Pets and People ....

Venereal Disease ....

The Sirius Stain ....

Trapping the Wild Microbe..........

Folk Medicine: Then and Now .....

Geography of Life and Death ....

Life or Death? ....

How Clean Is Your Air? ....
The Flush ....
Sewage Treatment ....
Fabric Flammability Inspection......
Testing the Breath for Alcohol ......
Can You Give the Breath of Life? ...
Emergency Care in Your City ....
Health Alert ....

For each book title:
Mark 1, if you read it all
Mark 2, if you read part
Mark 3, if you couldn't get it
Mark 4, if you didn't try to use it

V. D. ....
The Look You Like..................
Standard First Aid..................
Licit and Illicit Drugs ....
The Medicine Show ....
Dinky Hocker Shoots Smack ....
Health and Disease..................
Your Body and How It Works ....
Heart: A Golden Guide ....
Sarah T. ....
The Eater's Digest..................
____

The Modern Medicine Show ....
Be a Disease Detective ....
How Long Do People Live? ....
Death and Disposal ....
Where Can You Get Help? ....
What Do Medical People Do? ....
Health Journal ....
____

For each book title:
Mark 1, if the book was easy to read and useful
Mark 2, if the book was easy to read, not useful
Mark 3, if the book was hard to read and useful
Mark 4, if the book was hard to read, not useful

V. D. ....
The Look You Like..................
Standard First Aid..................
Licit and Illicit Drugs ....
The Medicine Show ....
Dinky Hocker Shoots Smack ....
Health and Disease..................
Your Body and How It Works ....
Heart: A Golden Guide ....
Sarah T. ....
The Eater's Digest..................
____

FEELING FIT, Objective Problems

Name ______________________

Teacher ______________________

Date ______________________

Evaluation Period 4

DIRECTIONS: Record your answers in the column at the right. Part of the question is repeated to help you keep your place. Record your reason for your choice (including choice 7) in the space provided. Check to be sure you've marked a choice for every problem except number 2. Thanks.

1. **Which way gives the most accurate...** **Reason:** ____ 1.

2. **The temperature shown is** ____ (Please fill in the blank, not the machine-scored column.) **Reason:** ____ 2.

3. **The correct blood pressure.....** **Reason:** ____ 3.

4. **Judy and Terri's blood pressure.....** **Reason:** ____ 4.

5. **The heart...** **Reason:** ____ 5.

6. **What happens to the blood...** **Reason:** ____ 6.

7. **If a person's blood pressure...** **Reason:** ____ 7.

8. **Her blood type is...** **Reason:** ____ 8.

9. **Blood types are important...** **Reason:** ____ 9.

10. **The most accurate description...** **Reason:** ____10.

11. **Which part is *not*...** **Reason:** ____11.

12. **A better plan would be...** **Reason:** ____12.

13. **What should Ken do...** **Reason:** ____13.

14. **A diuretic...** **Reason:** ____14.

15. **If Diane follows the diet...** **Reason:** ____15.

FEELING FIT, Objective Problems

Name ______________________________

Teacher ____________________________

Date ______________________________

Evaluation Period 5

DIRECTIONS: Record your answers in the column at the right. Part of the question is repeated to help you keep your place. Record your reason for your choice (including choice 7) in the space provided. Check to be sure you've marked a choice for every problem except number 18 and number 20.

16. Digested means... **Reason: ____ 16.**

17. What would you see? **Reason: ____ 17.**

18. Part 3 represents the ____. (Please fill in the blank, not the machine-scored column.) **Reason: ____ 18.**

19. The parts represent... **Reason: ____ 19.**

20. Tom's MOHI score is ____ (Please fill in the blank, not the machine scored column.) **Reason: ____ 20.**

21. What should Tom do? **Reason: ____ 21.**

22. If your eye... **Reason: ____ 22.**

23. The body protects itself... **Reason: ____ 23.**

24. Which statement...? **Reason: ____ 24.**

25. Which disease...? **Reason: ____ 25.**

26. Which statement about acne? **Reason: ____ 26.**

27. The part where acne... **Reason: ____ 27.**

28. His hearing will... **Reason: ____ 28.**

29. Which interpretation...? **Reason: ____ 29.**

30. The best reason... **Reason: ____ 30.**

FEELING FIT, Objective Problems

Name ______________________

Teacher ______________________

Date ______________________

Evaluation Period 6

DIRECTIONS: Record your answers in the column at the right. Part of the question is repeated to help you keep your place. Record your reason for your choice (including choice 7) in the space provided. Check to be sure you've marked a choice for every problem.

31. Syphilis microorganisms... Reason: ____ 31.

32. Venereal diseases... Reason: ____ 32.

33. An example... Reason: ____ 33.

34. Venereal diseases are spread... Reason: ____ 34.

35. Vaccination... Reason: ____ 35.

36. While disease...? Reason: ____ 36.

37. How many people...? Reason: ____ 37.

38. The purpose... Reason: ____ 38.

39. Which statement...? Reason: ____ 39.

40. The life expectancy...? Reason: ____ 40.

41. Which medicine... Reason: ____ 41.

42. The brand... Reason: ____ 42.

43. Health care... Reason: ____ 43.

44. Which list is *not*...? Reason: ____ 44.

45. Which is *not* useful...? Reason: ____ 45.

FEELING FIT: Self-Rating Problems

Name ____________________

Teacher ____________________

Date ____________________

(Mark only in the spaces indicated by the arrow.)

Column I. Work Habits:
Mark 1 for most of the time
Mark 2 (in between 2 and 3)
Mark 3 for about half the time
Mark 4 (in between 3 and 5)
Mark 5 for not often

I work independently—I don't need to be supervised. ———→

I try even if the reading is hard for me. ———→

I choose another activity to do when I'm waiting for long-term things to happen. ———→

I do my part of clean-up and management of materials. ———→

I do my part when I work with others on an activity. ———→

I start a new activity as soon as I finish one. ———→

I read activities carefully before I start work on them. ———→

I contribute to discussions about activities when I work with others. —→

I try to help the group stay on the subject when we discuss activities. ———→

When an activity I have started gets too hard to do, I keep trying to figure it out. ———→

I keep working on the activity I have chosen even when there are other interesting things going on in the class. ———→

Column II. In Comparison to CHANGE, I have:
Mark 1 for improved
Mark 2 (in between 1 and 3)
Mark 3 for about the same
Mark 4 (in between 3 and 5)
Mark 5 for not at all

I work independently—I don't need to be supervised. ———→

I try even if the reading is hard for me. ———→

I choose another activity to do when I'm waiting for long-term things to happen. ———→

I do my part of clean-up and management of materials. ———→

I do my part when I work with others on an activity. ———→

I start a new activity as soon as I finish one. ———→

I read activities carefully before I start work on them. ———→

I contribute to discussions about activities when I work with others. —→

I try to help the group stay on the subject when we discuss activities. ———→

When an activity I have started gets too hard to do, I keep trying to figure it out. ———→

I keep working on the activity I have chosen even when there are other interesting things going on in the class. ———→

FEELING FIT: Self-Rating Problems

Name ____________________

Teacher ____________________

Date ____________________

(Mark only in the spaces indicated by the arrow.)

Skills Development. Transfer your self-ratings to this form from page 28, beginning with:
Mark 1 for strongly agree.
Mark 2 for agree.
Mark 3 for ?
Mark 4 for disagree.
Mark 5 for strongly disagree.

I can read a thermometer accurately. →

I can take blood pressure accurately with a sphygmomanometer. →

I can use a microscope to see small things. →

I am improving my skill in writing understandable answers to "Choose Your Problem." →

I read parts of books and articles, because of activities I did in FEELING FIT. →

I am learning how to make arrangements with adults to do activities in the community. →

I learned new things about careers in FEELING FIT that I didn't know about before. →

I tried to change some of my habits that affect my health because of activities in FEELING FIT. →

Any skills you improved upon, during the module, that were important to you. →

____

____

____

____

FEELING FIT
CHOOSE YOUR PROBLEM A
CODING PROTOCOL

A. Were there some important things that you learned about in FEELING FIT that were not included in Objective Problems. Write enough detail for anyone to understand two things you learned.

COLUMN	
1-10	Student I.D. Number
11	One thing learned 1 = generalization with examples 2 = generalization without examples 3 = specific example(s) 4 = not to take BSCS in high school 5 = positive feelings 6 = negative feelings 7 = not codable 8 = value statement
12	Second thing learned 1 = generalization with examples 2 = generalization without examples 3 = specific example(s) 4 = not to take BSCS in high school 5 = positive feelings 6 = negative feelings 7 = not codable 8 = value statement 9 = no response
78-79	Code for FEELING FIT = 12

FEELING FIT
CHOOSE YOUR PROBLEM B
CODING PROTOCOL

B. Write a short story about what it's like to be in Human Sciences. Include both advantages and disadvantages if you can.

1. Do not code any comments on regular science except when it is referred to comparatively.

2. Do not code any comments about equipment not arriving on time.

3. Code all comments on evaluation only in the two categories for testing and evaluation (X).

4. Code phrases, dependent and independent clauses, as well as sentences. For example,

   "...is more interesting to do," (I+) is coded.
   "There are good activity (E+) but not all the time" (E-) is coded as marked. There are two evaluation comments, one positive, one negative.

5. Coding system. Ten codes will be used. Each coding will be recorded on the student response at the last word of the sentence, clause or phrase being coded. The student's responses will be recorded on the op-scan form in the exact order in which codable responses occurred in the exposition. One column will be used for each coded response. Five letter codes will be used. Their numerical equivalents, to be coded on the op-scan forms are as follows:

   E+ = 1
   E- = 2
   A+ = 3
   A- = 4
   V+ = 5
   V- = 6
   I+ = 7
   I- = 8
   X+ = 9
   X- = 0

   Choose Your Problem B begins in Column 13 on the op-scan form. The longest response ends in Column 29. Descriptions of each coding term are described below.

(E+) Evaluation Comments (good, pleasant, happy, fair, nice)

like (it)
better
feel special
cool
great
couldn't wait for more
neat
feel special, proud
glad
worth it

(E-) Evaluation Comments (bad, unpleasant, sad, awful, unfair)

don't like (it)
hate it
teacher yells at you for nothing
terrible
can't stand it
stupid
activities are dry
don't care for BSCS

(A+) Activity Comments (active, fast, moving, lively, doing)

can walk around
easy directions
working with someone/others/whom you want
more participation
learn as fast as you want/own speed
not a lot of book work
can go places
like to do HSP better
choose when I want to...
learn by doing
do yourself, on your own
hardly any paper work
not a lot of homework

(A-) Activity Comments (not active, slow, still, tired, listening)

less participation
less studying
materials not there (lost or stolen)
don't have time to/have to work fast
too much noise
dislike reports
activities too long
too much writing
have to have other people to do activities with
some activities call for doing impossible things
can't get materials from home
equipment stolen
not enough interesting activities
never get help from teacher

(V+) Value Comments (close, full, useful, important, valuable)

learn more/a lot
can't have HSP in high school
HSP ends
unique experience
should start at 3rd, go through 12th
(more) freedom
not as hard
find answers yourself
covers more things
makes you want to learn
informative
trusted
learn new things
don't have to learn what you learned before
ask questions you want
chance to explore
choose (pick) activities
do a lot more than...
more variety, do more things
different kinds of activities
(more) independent
have supervision you don't know is there
teacher not always standing over you
hope my child has it
learn to deal with problems in the future
is educational
never out of work
more understandable
its easier

(V-) Value Comments (distant, empty, useless, not important, worthless)

not learning
people...waste time
I won't know...
can abuse freedom
more interested in regular science
activities not understandable
do activity even if don't want to
some problems are hard
doesn't meet requirements for science jobs
can't do things like in other science classes
teacher gets on your back for not doing activities

(I+) Interest Comments (interesting, exciting, fun)

enjoyable
(not interest as choice)

(I-) Interest Comments (boring, dull, not fun)

All comments on Testing, Evaluation and Grading in HSP

(X+) (all positive comments)

glad there was a choose your problem

(X-) (all negative comments)

hate evaluation
long evaluation
have to do evaluation
a lot of evaluation

FEELING FIT
CHOOSE YOUR PROBLEM C
CODING PROTOCOL

C. Explain how being interested in a particular activity was important to what you learned. Write enough to convince a reader that interest was important. Also tell what you learned because of interest.

COLUMN

30 IMPORTANCE OF INTEREST

1 = feeling of accomplishment
  accomplished something
  learning more, more likely to learn
  work harder, work better
  examples of what was learned

2 = feeling of enjoyment
  fun
  excited
  turns you on

3 = (1 + 2)

4 = feeling of involvement
  done things on own time
  care about
  it will be meaningful

5 = (1 + 4)

6 = (1 + 2 + 4)

7 = not codable

8 = no comments on importance

(continued)

COLUMN

31

RESULTS OF LACK OF INTEREST

1 = less accomplished
learn less
in one ear and out the other

2 = activity is a chore
just do it
boring

3 = (1 + 2)

4 = would quit

5 = the module is stupid
no interesting activities

6 = no comments on lack of interest

7 = not codable

8 = (1 + 5)

FEELING FIT
CHOOSE YOUR PROBLEM D
CODING PROTOCOL

D. What does being in good health--feeling fit--mean to you? Include as many different ideas in your answer as you can. In a short sentence, explain what each of your ideas mean .

COLUMN

32 + 33	01 = exercise, physical fitness (only)
	02 = food, nutrition (only)
	03 = attitudes, feelings, mentally fit (only)
	04 = weight control, good shape/figure (only)
	05 = rest/sleep (only)
	06 = avoid sickness (only) + (tooth care)
	07 = avoid smoking/drinking (only)
	08 = 2 of the above
	09 = 3 of the above
	10 = 4 of the above
	11 = not codable (include reiterations like--take care of yourself, care about your health, etc.)

468

FEELING FIT
CHOOSE YOUR PROBLEM E
CODING PROTOCOL

E. Explain how you feel about the activities you completed and are accountable for in FEELING FIT. What would you say to a person who said, "How you feel about school work is not important, what did you learn?"

COLUMN

34

1 = general positive tone

2 = general negative tone

3 = mixed positive and negative tone

7 = not codable

FEELING FIT

CHOOSE YOUR PROBLEM F

CODING PROTOCOL

F. The average blood pressure of ten people, taken after 24 hours without coffee or similar substances, are shown in the column, "Average Blood Pressure." Each person drank one cup of strong coffee. Blood pressure was measured and recorded at 30 and 60 minutes after drinking the coffee.

1. What is your conclusion about the effects of coffee on blood pressure based on the data on the chart?
2. What reasons do you have for your conclusions?

PERSON NUMBER	AVERAGE BLOOD PRESSURE AFTER 24 HOURS WITHOUT COFFEE	BLOOD PRESSURE 30 MINUTES AFTER DRINKING STRONG COFFEE	BLOOD PRESSURE 60 MINUTES AFTER DRINKING STRONG COFFEE
1	122/80	124/81	125/82
2	118/80	118/79	118/81
3	125/84	125/84	127/85
4	137/82	136/82	138/83
5	119/86	119/86	118/86
6	120/85	122/86	121/85
7	123/80	124/80	123/81
8	122/78	123/79	124/80
9	127/82	127/82	127/82
10	130/85	131/85	130/85
Average	124.3/82.2	124.9/82.4	125.1/83.0

COLUMN

35

What are the effects of coffee on blood pressure?

1 = blood pressure goes up
2 = blood pressure goes down
3 = blood pressure stays the same
7 = no statement of effect

36

What reason(s) is given?

1 = caffeine
2 = because blood pressure data shows the rise is higher after 30 minutes
3 = because the blood pressure changed
7 = no reason for effects

FEELING FIT
CHOOSE YOUR PROBLEM G
CODING PROTOCOL

G. Describe or make a drawing to show an important idea you learned in FEELING FIT. Your description or drawing should be clear enough for anyone reading or looking at your response to understand what you have learned.

COLUMN

37

IMPORTANT IDEA LEARNED

1 = description or representation of a specific activity, no ideas

2 = specific skill (learned to take blood pressure, learned right way to care for teeth)

3 = general ideas (including more than one activity)

4 = specific idea from specific activity

7 = not codable

FEELING FIT
CHOOSE YOUR PROBLEM H
CODING PROTOCOL

Choose Your Problems H-R will be coded on this, the second op-scan sheet.

H. Name a serious family health problem that could be prevented if people in the family knew about it. How would the family help reduce or prevent the problem?

COLUMN

1-10 Student I.D. Number

11 For all responses where only 1 problem is listed.

1 = smoking
2 = hole in the liver
3 = leukemia
4 = diabetes
5 = flue
6 = mental retardation
7 = tuberculosis
8 = rabies in a pet dog

For all responses where more than one problem is listed.

9 = two or more problems listed

12 How would the family help reduce or prevent the problem?

1 = tell the person to quit smoking until he does
2 = stop drinking and smoking
3 =
4 =
5 = use different drinking glasses
6 = mother should eat well and stay in good health
7 = take their medicine
8 = take the dog to the vet
9 = no prevention stated

78-79 Code for FEELING FIT = 12
80 Code for Op-scan Sheet #2 = 2

FEELING FIT
CHOOSE YOUR PROBLEM I
CODING PROTOCOL

I. If you studied foods in your school cafeteria, what food group did you find was not eaten by most students? What was the most common reason given for not eating foods in this group? What do you think should be done about students not eating foods in this group? Why?

COLUMN

13 What food group was not eaten in the school cafeteria?

1 = milk group (milk, cheese, ice cream, butter/margarine)
2 = meat group (meats, fish, poultry, eggs, dry beans, peas, nuts)
3 = vegetables or vegetables and fruit (green/yellow vegetables, tomatoes, salads)
4 = breads and cereals
5 = fruit
6 = all groups except meat and desert
7 = none listed

14 Reason for not eating food

1 = taste/smell
2 = appearance
3 = served cold
4 = taste and appearance
5 = taste + appearance + cold
6 = don't like
7 =

15 What should be done?

1 = serve vegetable hot
2 = get students to try it before they say they don't like it/tell them about it
3 = change the type of vegetables
4 = get something better than vegetables
5 = don't serve it
6 = nothing
7 = not stated
8 = make them eat it
9 = make them look good

FEELING FIT
CHOOSE YOUR PROBLEM J
CODING PROTOCOL

J. Do you agree or disagree with this statement: "Pets are neither good nor bad. They are neither a major problem nor do they benefit people." State whether you agree or disagree. Give your reasons for agreeing or disagreeing.

COLUMN

16 Positive values for pets

1 = companionship/affection
2 = protection/safety
3 = seeing eye dogs provide sight
4 = tactile/sensory stimulation
5 = 2 or more of 1, 2, 3, 4
6 = personal value/no reason given
7 = not codable
8 = no response

17 Negative values for pets

1 = disease transmission
2 = overpopulation problem
3 = nuisance
4 = 2 or more of 1, 2, 3
5 = personal value/no reason given
6 = not codable
7 = no response

18 People/pet interrelationships

1 = the value of pets depends upon the care provided by the owner
2 = reiteration/generalization
3 = pets equated with animals in general
4 = not codable
5 = no people/pet interrelationship discussed

474

FEELING FIT
CHOOSE YOUR PROBLEM K
CODING PROTOCOL

K. Loneliness is a very personal experience. Describe, in detail, what the individual and social parts of loneliness mean to you.

COLUMN

19-20

01 = being by yourself, alone

02 = not having anyone to talk to

03 = not having any friends

04 = a general negative response

05 = feeling sad, in a bad mood

06 = 1 + 2

07 = 2 + 3

08 = 1 + 2 + 3

09 = 3 + 5

10 = not codable

FEELING FIT
CHOOSE YOUR PROBLEM L
CODING PROTOCOL

L. Explain the difference between "being alone" and "loneliness" as you now understand them.

More than one item may be coded.

COLUMN

21-23 A. BEING ALONE

1 = Being physically alone--no value placed on it

2 = Being physically alone and doing something--no value placed on it

3 = Being physically alone--doing something which is viewed as necessary, positive or valuable

4 = Being physically alone--with a negative value placed on it

5 = Being physically alone by choice

6 = The same as loneliness, a negative feeling of isolation

7 = Not codable

8 = Being alone not discussed

24-26 B. LONELINESS

1 = A feeling of being emotionally or psychologically alone--no value placed on it

2 = A feeling of being emotionally or psychologically alone and perceiving it negatively (a bad feeling)
--no one cares
--an empty feeling

3 = Being physically with people but isolated from them psychologically
--a feeling of not belonging

4 = Needing someone who is not present
--a friend, family member, pet

(CONTINUED)

COLUMN

24-26 B. LONELINESS (continued)

5 = Not having any friends
6 = Being alone, not by choice
7 = The same as being alone, but with nothing to do
8 = Not codable
9 = Loneliness not discussed

FEELING FIT
CHOOSE YOUR PROBLEM M
CODING PROTOCOL

M. People are concerned about the environment. Does the environment affect death rates? Give evidence to support your answer.

COLUMN

27

1 = Demographic response 1 [East Coast has higher death rate than mid-West]

2 = Demographic response 2 [industrial areas have higher death rates than rural areas]

3 = Pollution results in more illness

4 = Pollution spreads infections

5 = Implication that heart disease and cancer are related to environment--personal and/or social

6 = lack of food results in starvation

7 = unrelated response/insulated opinion

478

FEELING FIT
CHOOSE YOUR PROBLEM N
CODING PROTOCOL

N. Diagram the main steps in sewage treatment in your city.

COLUMN

28

1 = diagram with primary, secondary, and tertiary treatment

2 = diagram with primary and secondary treatment

3 = diagram with primary treatment

4 =

5 =

6 = diagram, but no steps

7 = unrelated diagram

FEELING FIT
CHOOSE YOUR PROBLEM O
STUDENT RESPONSES

O. Write one important objective problem that someone doing the activity should be able to answer. Explain why you think the problem is important.

CORLEY--LANSDOWNE

Glenn Coleman (41711 4141) "To Learn"

Eddie Campion (44661 4144) "How the Science class is run because before the teacher grade it by what she seen but now you got to right what you it."

PROBLEM O IS NOT CODED ON THE OP SCAN SHEETS.

FEELING FIT
CHOOSE YOUR PROBLEM P
CODING PROTOCOL

P. What did you find out from the activity? Include data you gathered, what you did, or made, etc., and what it means, your interpretation, of what you learned.

COLUMN

29

1 = Description of field trip--What Do Medical People Do?

2 = Result of "How Fast Can You React"

3 = Adapted Technoland

4 = Found how to save a life

5 =

6 =

FEELING FIT
CHOOSE YOUR PROBLEM Q
STUDENT RESPONSES

Q. Describe an experiment you designed. Tell what you wanted to find out, how you did the experiment, and what you found.

VASCONCELLOS--MARKHAM

Don Fullerton (92671 9292) "This is a steambroiler witch measures steam. 1. Bottle witch makes the steam. 2. Test tube. 3. Stryfoam Cup. 4. themometer

Sandy MacDonald (91522 9291) "My self-writen activity was about e.s.p. That is sort of along the line of mental health. My experiment(s) were to test ability of p.k. (mind over matter) I took a new dice (no edges worn down) and I thought and thought of the number that I wanted to turn up. I shook the dice in a cup and tossed it on to the floor. If my number turns up more than two out of six turns, than possibly I have p.k.

CORLEY--LANSDOWNE

Glenn Coleman (41711 4141) "Learned alcohol turns the blood"

JOHNSON--WHITAKER

Doug Roake (73231 7674) "I did an experiment to find how bad the polution is. So I got glass slides and put vasoline on them, then put them on the North, South, ... sides. then 7 days later I discovered the polution."

CHESTER-MOHR--WHITAKER

Paul Studer (75381 7775) "with a microscope adjusting it."

RORTVEDT--SENNETT

Bill Henderson (61181 6464) "It was a boat with a syrafoam body and a battery for an engine. We wanted to see if would work. It did"

FEELING FIT
CHOOSE YOUR PROBLEM R
CODING PROTOCOL

R. Write the title and explain an activity produced by a student. Why was this more important to you than activities from the module? How does the activity relate to the module?

COLUMN

31

1 = Project of independent work described, related to module

2 = Made a game, described it, related to module

3 =

4 =

5 =

6 = uninterpretable statement

7 = uninterpretable diagram

PROTOCOLS FOR PROBLEMS 2, 18, & 20 FOR FEELING FIT

Evaluation Period 4

Problem 2

code #

1 = 37.2/37.2C/37 2/10/372/

2 = 37 1/4

3 = 37.4/37.1/37.__ /37/37 1/5/37 1/2/

4 = 36/36.__

5 = other numbers

leave blank

7 = didn't choose problem

Evaluation Period 5

Problem 18

code #

1 = diaphram

2 = rib cage/chest/

3 = other respiratory parts

4 = other body parts/stomach/tongue

5 = don't know/don't understand

leave blank

7 = didn't choose problem

Problem 20

code #

1 = 2.4

2 = 24

3 = 27, 25 , 23

4 = they add up equal

5 = other numbers

leave blank

7 = didn't choose problem

Keys to Objective Problems

Evaluation Period 4	Evaluation Period 5	Evaluation Period 6
1. 2	16. 2	31. 4
2. 37.2°C (1)	17. 1	32. 2
3. 1	18. diaphram (1)	33. 1
4. 3	19. 3	34. 2
5. 3	20. 2.4 (1)	35. 4
6. 1	21. 3	36. 2
7. 4	22. 3	37. 5
8. 4	23. 1	38. 1
9. 2	24. 2	39. 3
10. 2	25. 5	40. 4
11. 3	26. 4	41. 5
12. 1	27. 2	42. 3
13. 3	28. 1	43. 3
14. 4	29. 1	44. 1
15. 1	30. 3	45. 2

Facilitating Self-Evaluation

By this time in the school year, you may wish to ask yourself some questions about how effectively you are facilitating self-evaluation.

	Strongly Agree	Agree	?	Disagree	Strongly Disagree
My interaction with students helps them develop criteria for estimating the quality of their own work.	1	2	3	4	5
I consult with every student during each grading period so that we arrive at an understanding of how grades are determined.	1	2	3	4	5
I review some (or all) Objective Problems, as a learning activity.	1	2	3	4	5
I review some of the reasons given for choice of responses to Objective Problems and how these can be improved in quality for students with different competencies.	1	2	3	4	5
I lead a discussion of responses to Choose Your Problem, helping students analyses understandable and non-understandable responses. The goal is to help students set their own criteria for quality.	1	2	3	4	5

EVALUATION PERIODS

Evaluation is a continuous activity throughout the module. Students should be encouraged to keep the "INVENTION Folder" up-to-date. They need to be reminded to save samples of their best work in their Folders to show the kind and quality of work they are producing.

The design of INVENTION makes formal end-of-the-module evaluation, rather than evaluation at the end of each problem area, the best option. You may want to set aside some time during each week to help students in small groups, or as a total class, to review what they have done, to organize their thoughts as to new problems they now recognize, and to assess the major new ideas and facts they have encountered.

In summary, the formal evaluation activity for INVENTION will be conducted only at the end of the module. We estimate that it will require three or four class periods to complete.

The materials provided in the module are listed in the table that follows. In addition, students will need to again use their "Mapping My Progress in Human Sciences, Level III." This booklet was sent with the CHANGE module evaluation materials. New pages for this booklet for graphing and summarizing the Self-Evaluation Problems are included. These should be stapled to the "Mapping My Progress in Human Sciences" booklet.

EVALUATION MATERIALS AND TIME OF USE

TITLE	DESCRIPTION	TIMING
INVENTION Folder	Lists activity titles by problem area and asks for parts of activities done and parts for which the student wishes to be accountable.	Daily and at the evaluation periods at the end of the module. (Task 1)

TITLE	DESCRIPTION	TIMING
Student Guide to INVENTION	This booklet describes the module for students (and parents). It also explains the evaluation materials and procedures. (one per student)	Daily and at the evaluation periods at the end of the module.
My Activity Record	This is one machine scorable form for the entire module. It also includes book titles provided in the module. (one per student)	End-of-module evaluation periods (Task 2)
Problems to Solve	This booklet contains three sets of Objective Problems, one set of Choose Your Problem, and Self-rating Problems.	End-of-module evaluation periods (Task 3)
Objective Problems 7 and 8	This is a machine scorable form for transferring answers to two of three sets of objective problems in the Problems to Solve booklet. (one per student)	End-of-module evaluation periods, following completion of Task 3
Objective Problem 9	This is a machine scorable form for transferring answers to one Objective Problem set. (one per student)	End-of-module evaluation period, Tasks 3 and 4.
Self-rating Problems	This is a machine scorable form for transferring responses to the Self-rating problems in the Problems to Solve booklet. (one per student)	End-of-module evaluation periods
Choose Your Problem Work Sheets	These are for student responses to short answer essay problems. They are printed on NCR paper. Copy 1 is for the student to retain in his or her Folder. Copy 2 is to be mailed to the Human Sciences Project. (two pads per class)	End-of-module evaluation periods (Task 5)

TITLE	DESCRIPTION	TIMING
Mailer	One mailer is provided to return the machine scorable My Activity Record and Objective Problems forms.	Mail as soon as possible after you have checked each paper for accuracy.

EVALUATION DESIGN FOR INVENTION

The evaluation procedures and materials for INVENTION are designed to provide students with products that can be used for self-evaluation and as a data base for you and your students to make judgments about grades. Both objective and subjective data are included in this data base.

The basic issue you and your students must resolve is whether evaluation must result in a single grade or can be descriptive of accomplishments. If a single grade is to be derived, a decision must be made as to whether the grade will be referenced to individual growth and development or will be normative, based on comparisons of each student's work with the norms of the class group or some other reference group. The evaluation materials for INVENTION may be used in either of those contexts, but the use will differ in each. Both you and your students need to have the same defined point of view about the basis for the kinds of evaluation data to be used and the uses to which these data will be put.

The next question to be resolved, and it may only be resolved empirically, is the tension between quality and quantity. How can these two dimensions of everything you and your students do in class be determined? These two questions are presented in relation to each item in the evaluation materials. Figure 1 shows the relationships of the different evaluation materials to determining the quality and quantity of student accomplishments.

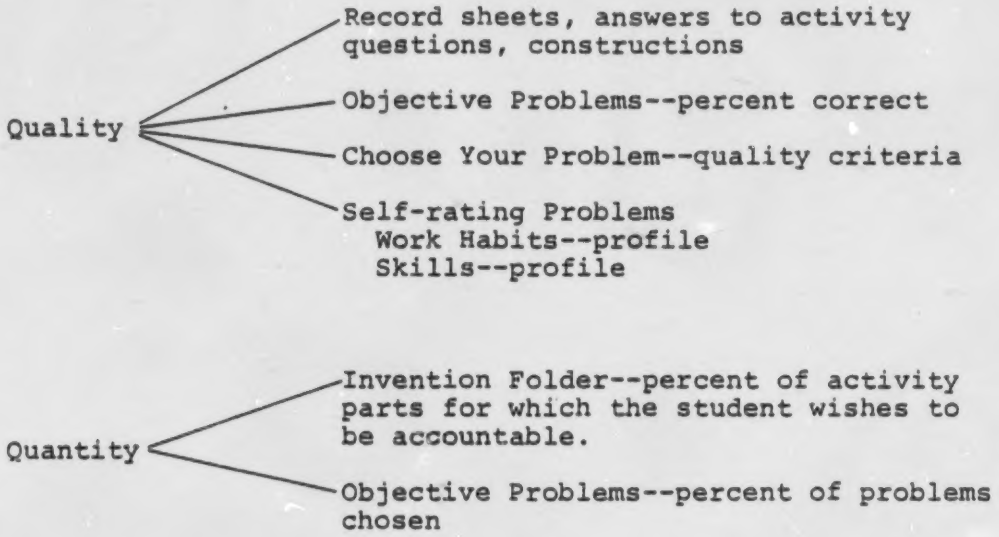

Quality
Record sheets, answers to activity questions, constructions
Objective Problems--percent correct
Choose Your Problem--quality criteria
Self-rating Problems
Work Habits--profile
Skills--profile
Quantity
Invention Folder--percent of activity parts for which the student wishes to be accountable.
Objective Problems--percent of problems chosen

Figure 1. Schematic relations of evaluation data to quality and quantity.

MECHANICS OF THE EVALUATION PROCESS

INVENTION FOLDER

The "INVENTION Folder" is to aid students in executing their responsibility for record keeping. The Folder is for student-teacher-parent use. When completed, it should include an accurate record of the activities for which each student has accepted accountability. INVENTION activities are in parts and sub-parts. We ask the student to keep an accurate record by circling each part as they do it. Then they are to circle the parts they are to be accountable for. After work has been completed at the termination of the module, each student should have the opportunity to review all activity parts circled.

The Folder has a pocket for students to save samples of their best work from the module. These materials along with the materials from the formal evaluation tasks serve as the written source of materials for evaluation and grading. Your judgment and that of each student also become important components of translating data into grades when that is necessary.

TASK 1: MY ACTIVITY RECORD

Students will need their "INVENTION Folder," their "Student Guide to INVENTION," and access to the module and the books included with the module. Since they will be recovering data from the full module, encourage them to go to the module cart to look at an activity if they have doubts about whether or not they completed it.

Task 2 is to complete the machine scorable form, "My Activity Record." Care and accuracy are essential to this task. When all students have completed the forms, you might have them exchange papers to check each other's accuracy. Here are some check points:

- Name, teacher, and date are legible.
- Each activity part has one and only one mark--1, 2, 3 4, 5, or 6--for activities done.
- Each activity part has one and only one mark for activities for which the student is to be accountable.
- Number 7 should not be marked.
- Erasures are clean.
- The page is not wrinkled or torn.

Emphasize to students that this activity will not be a permanent part of the Human Sciences Program, but that it is needed because these are test materials. The marks they make for each activity are used when the Human Sciences staff begins to review materials.

Collect these papers and have a committee of two or three students recheck them, or recheck them yourself, before mailing.

TASK 2: OBJECTIVE PROBLEMS

Distribute the "Problems to Solve" booklets. The "Problems to Solve" booklets contain three sets of Objective Problems, a set of "Choose Your Problems," and a set of "Self-rating Problems."

The three Objective Problems sets are labeled Evaluation Period 7, Evaluation Period 8, and Evaluation Period 9. These designations coincide with the graph notations in "Mapping My Progress in Human Sciences, Level III." They may be completed in one or more periods as required. Students will need to mark their responses and write reasons in the booklet before they transfer answers to the appropriate Objective Problems machine scorable form.

Examples are provided to try to improve the quality of responses to the "Reasons" part of each problem. Please go over these examples with students before they start on "Objective Problems."

You may wish to make the machine scorable forms available to let students transfer answers on an item by item basis. You may wish to hold the form until one Objective Problem set is completed. Then, the appropriate Objective Problem form could be issued for transfer of data. You might talk about the problem with students and let them decide the way the task can be managed in the most pleasing way. The goal is accurate transfer of data from the booklet to the form.

The machine scorable forms again need to be checked before mailing. You can use the procedures described in Task 2 if you wish. The only difference in the criteria are that marks of Number 7 are to be used, but there should be no Number 6's marked. We are asking students to give reasons for their response to every item, including 7. We find that many students who did a related activity do not choose the objective problem. We would like to know their reasons.

TASK 3: CHOOSE YOUR PROBLEM

The short-answer essay or drawing problems are included in the "Problems to Solve" booklet. In addition to the booklet, students will need two sets of "Choose Your Problem Work Sheets." A set of work sheets consists of one white sheet, Copy 1, and one yellow sheet, Copy 2, of NCR paper.

Encourage students to organize their thoughts by practicing or outlining on scratch paper before using the NCR paper. Help them develop a sense of pride in what they will record.

Students are asked to choose two "Choose Your Problems." Each one is to be answered on one set of NCR forms.

When this task is completed, Copy 1 (white) should be retained by you or the student. Copy 2 (yellow) should be checked and then mailed to the Human Sciences Project.

TASK 4: SELF-RATING PROBLEMS

The materials for Task 4 are in the "Problems to Solve" booklet. This task is the completion of "Self-rating Problems." The scales in this set of problems are to formalize self-judgment (the student) and external judgment (yours) regarding the students' development of social competencies, responsibility for learning, contributions to maintaining a high quality learning environment, and skills.

Each student should plot his or her response to the items in the scale. For this module, transfer of information from the "Self-rating Problems" to a machine scorable form is requested. The form may be on one side of a form for Objective Problems, but it *may* be a completely separate form. At this writing it is planned to be on the same form as "Objective Problems, Evaluation Period 9."

Part of Task 4 is transfer of student responses to the machine scorable form. Again please use some checking procedure to assertain the accuracy of the transfer.

TASK 5: SCORING AND PLOTTING OBJECTIVE PROBLEMS

Keys to the Objective Problems will be mailed to you separately. You may wish to score the problems yourself or have students assist you. Students will need their "Mapping My Progress in Human Sciences, Level III" booklets for this task.

Have students record the module title, INVENTION, in spaces 4, 5, and 6 on page 2 of the chart, Key to Evaluation

Periods. Have students write in the appropriate problem areas. (Use the order in the Folder, even if problem areas were not studied in that order.)

They will need to perform the calculations for percent of activities, as shown at the bottom of page 2, on scratch paper. They will need to do this for each of the three problem areas, using their "INVENTION Folders" as a data source. They can then plot their percentages on the graph on page 3.

Before you have them proceed to page 4, have them make their interpretation of what the graph means, now that it has nine points. This will provide you with another opportunity to help students understand the necessity to interpret graphed data.

Have students fill in the module title and problem area columns for the table on page 4. The column "Problem Area" on the chart is really not applicable for this module. They should write in Evaluation Period 7 Problems, etc., in this column.

Again, students will need to carry out their calculations on separate paper. They may or may not need to follow the model of calculations on page 4.

Interpretation of the graph with two lines, nine points each, is the last phase of the evaluation activities. However, this is an opportune time to have students reduce all of their evaluation materials to a grade for the module, if grading is required.

The Self-rating Problems now have a summary sheet in the "Mapping My Progress in Human Sciences, Level III" booklet. Comparisons on the Work Habits section might be appropriate in individual student-parent conferences.

SUMMARY

STUDENTS WILL COMPLETE:	DESTINATION:
INVENTION Folder	Student
*My Activity Record	Human Sciences Project
Problems to Solve Booklet	Student
*Objective Problems: Evaluation Period 7, Evaluation Period 8	Human Sciences Project
*Objective Problems: Evaluation Period 9,	Human Sciences Project
Choose Your Problem Work Sheets:	
Copy 1	Student
*Copy 2 (2 per student)	Human Sciences Project
*Self-Rating Problems	Human Sciences Project

Be sure to mail starred (*) items (1 each per student except for Choose Your Problem) to the Human Sciences Project.

Name ______________________

Teacher ______________________

Date ______________________

INVENTION

PROBLEMS TO SOLVE

1. Objective Problems

   Evaluation Period 7
   Evaluation Period 8
   Evaluation Period 9

2. Choose Your Problem

3. Self-Rating Problems

Human Sciences Program
Level III
Experimental Edition, 1976

INTRODUCTION

There are five evaluation activities for INVENTION. They will all be done at the end of the module. There are three sets of Objective Problems, one group of Self-Rating Problems, and an INVENTION Questionnaire. These activities are for learning. Many times they will ask you to think about an activity in a different way from when you did it. They are also designed to help you display what you can do after completing the module. We hope you will find the activities interesting.

Objective Problems: Evaluation Period 7

Read each problem carefully. If you choose to answer a problem, circle the one number of the best answer. If you do not wish to answer the problem, circle response 7.

Be careful. Several answers may be correct or partly correct, but one answer is best. The best answer may include more accurate information than others. It may be more complete, that is, it may include more of a subject. Think before you circle your response.

To help you, problems are grouped by activity. Solve as many of the problems as you can. This time we are not asking you to give reasons for your choice. We now have enough information on choice to help us solve our problems. Thanks.

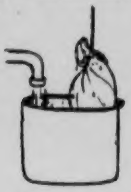
When you have marked each of the 15 items, either with a 7 or your response choice, you have completed this activity. At some time we need to have you record your responses from this booklet on the machine-scored form labeled, "Objective Problems: Evaluation Period 7." Thanks again.

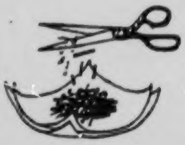
OBJECTIVE PROBLEMS: Evaluation Period 7

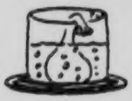
Activity: Paper, Part I

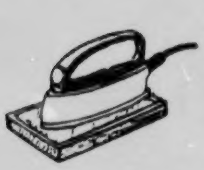
---

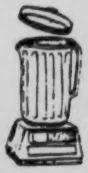
1. Certain steps must be done in order to make paper. Here are the steps:

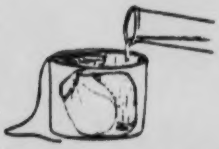

A. wash it


B. cut the fibers


C. boil the fibers


D. iron it


E. mince the fibers

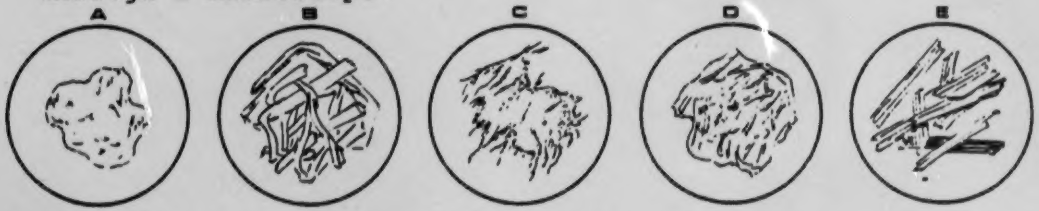

F. add sodium hydroxide

Which is the correct series of steps?

1. A, B, C, D, E, F
2. B, F, C, A, E, D
3. E, F, B, A, C, D
4. F, C, B, E, D, A
7. I did not choose this problem.

---

2. Look at the five photos (drawings) of straw as seen through a microscope.

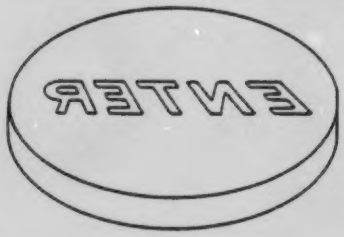


Which arrangement of the photos (drawings) is the correct order from the first to the last step in changing straw to paper?

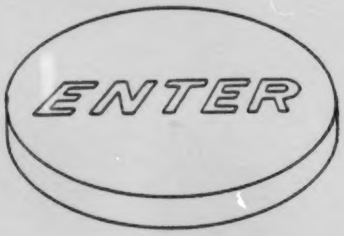
1. D, E, C, A, B
2. A, D, B, C, E
3. C, A, E, D, B
4. E, B, D, A, C
5. B, A, E, C, D
7. I did not choose this problem.

Activity: Printing

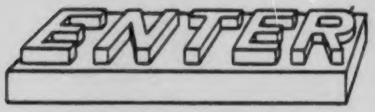
3.



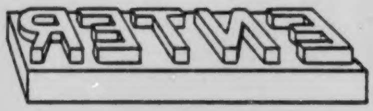
A
Silk screen



B
Silk screen



C
Block print



D
Block print

Joan made two block prints and two silk screens for a sign. Which ones will print the sign correctly?

1. A and C
2. A and D
3. B and C
4. B and D
7. I did not choose this problem.

Activity: Money, Money, Money, Part II

---

4. Which of the following materials would serve best as a medium of exchange if money was not available?

1. water
2. sea shells
3. candy
4. flowers
7. I did not choose this problem.

5. Money "works" as a medium of exchange because people

   1. know that the metal in coins has the same value as the coin.
   2. are used to using it and it is plentiful.
   3. like it better than bartering.
   4. have confidence in it and it is scarce.
   7. I did not choose this problem.

Activity: The Camera, Parts II and IV

---

6. Jack was trying to find out how long to expose film in his pin hole camera. He placed a potted plant in full sun and took all pictures from the same place. Here is his record sheet.

Picture Number	Exposure time	Print Quality	
		Dark or Light?	Sharp or Fuzzy?
1	1 second	Dark	Fuzzy
2	2 seconds	Dark	Sharp
3	3 seconds	Medium	Fuzzy
4	4 seconds	Light	Sharp

   The best exposure time for Jack to use is:

   1. 1 second.
   2. 2 seconds.
   3. 3 seconds.
   4. 4 seconds.
   7. I did not choose this problem.

---

7. The most important invention in photography depended on discovering

   1. ways to shape metals into light-proof cameras.
   2. how to make shutters that would open for 1/150th of a second.
   3. how to control the amount of light striking the film.
   4. chemicals that would change when exposed to light.
   7. I did not choose this problem.

Activity: The Telephone

---

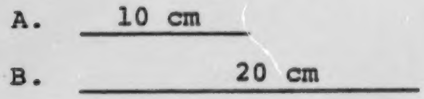
8. The basic problem Bell solved in inventing the telephone was how to

    1. carry sound over wires.
    2. get people to produce enough sound to be heard.
    3. convert sound into electricity.
    4. store sound so that it could be transmitted.
    7. I did not choose this problem.

Activity: Technology and Music

---

9. Two wires are strung as shown below. Both are of the same material and under the same tension.



Which statement is the most correct statement?

    1. String A will vibrate twice as fast as string B.
    2. String A will vibrate at the same rate as string B.
    3. String B will vibrate twice as fast as string A.
    4. String A and B will vibrate at different rates.
    7. I did not choose this problem.

Activity: The Bicycle, Part II

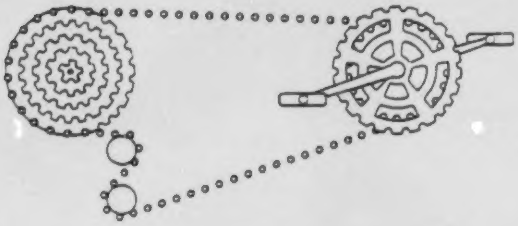


Figure 1.

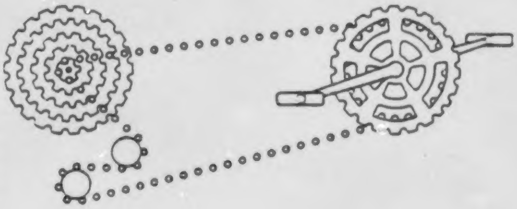


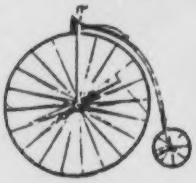
Figure 2.

10. Compare Figures 1 and 2. If you had to decide a gear setting to use to climb a hill, what would you do?

    1. choose neither one
    2. choose a gear setting like Figure 1
    3. choose either one
    4. choose a gear setting like Figure 2
    7. I did not choose this problem.

---

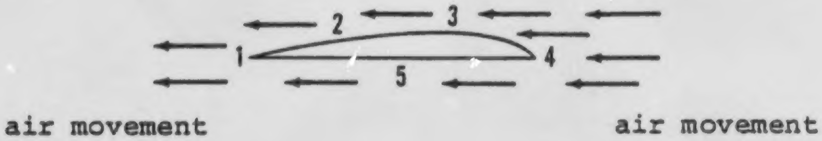
11. The invention that makes the modern bike much better than this bike was the invention of



    1. gears.
    2. rubber tires.
    3. more comfortable seats.
    4. light weight metal.
    7. I did not choose this problem.

Activity: Airplanes, Part II

12.



In the above diagram, air pressure will be smallest at point

    1. 1
    2. 2
    3. 3
    4. 4
    5. 5
    7. I did not choose this problem.

Activity: The Automobile, Part II

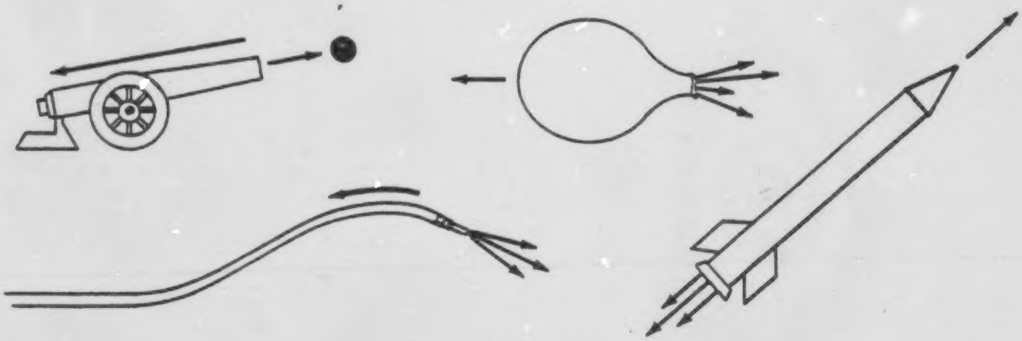
---

13. The story "The Mary Celeste Move" was concerned with

1. Mary Celeste and her high-speed automobile.
2. high-speed automobiles polluting the world.
3. people making high-speed automobiles.
4. high-speed automobiles and technology.
5. people trying to get away from high-speed automobiles and technology.
7. I did not choose this problem.

Activity: Space Travel

14.



Look at the drawings above. Which phrase best describes what's going on? The action of the

1. cannon ball pushing on the air causes the cannon to move.
2. exhaust gases pushing on the ground cause the rocket to move.
3. air rushing out of the balloon causes the balloon to shrink and move.
4. water rushing out of the hose causes an opposite and equal reaction and the hose moves.
7. I did not choose this problem.

Activity: You and Other Great Inventors, Part II

---

15. Which one of the following is not a property of Sculpy®?

1. It gets dry and crusty at room temperature.
2. It gets hard when it is heated to high temperature.
3. It picks up newsprint if pressed onto a newspaper at room temperature.
4. It holds its shape for weeks at a time.
5. It is soft and pliable at room temperature.
7. I did not choose this problem.

Objective Problems: Evaluation Period 8

Read each problem carefully. If you choose to answer a problem, circle the one number of the best answer. If you do not wish to answer the problem, circle response 7.

Be careful. Several answers may be correct or partly correct, but one answer is best. The best answer may include more accurate information than others. It may be more complete, that is, it may include more of a subject. Think before you circle your response.

To help you, problems are grouped by activity. Solve as many of the problems as you can. This time we are not asking you to give reasons for your choice. We now have enough information on choice to help us solve our problems. Thanks.

When you have marked each of the 15 items, either with a 7 or your response choice, you have completed this activity. At some time we need to have you record your responses from this booklet on the machine-scored form labeled, "Objective Problems: Evaluation Period 8." Thanks again.

Objective Problems: Evaluation Period 8

Activity: Weaving

---

16. The heddle was an important invention because it allowed the weaver to

1. weave more quickly.
2. string a loom more easily.
3. keep the warp from getting tangled.
4. weave larger materials.
7. I did not choose this problem.

Activity: Scrub-A-Dub-Dub

---

17. John set up the following experiment to wash test cloths with nine different stains on them.

Test #	Wash Time	Water Temperature	Detergent	Bleach	Method
1	5 min.	95°C	Brand A	None	Washing machine
2	5 min.	75°C	Brand A	None	Washing machine
3	5 min.	55°C	Brand A	None	Washing machine
4	5 min.	35°C	Brand A	None	Washing machine
5	5 min.	15°C	Brand A	None	Washing machine

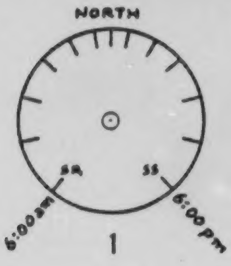
John was trying to find out the affect of

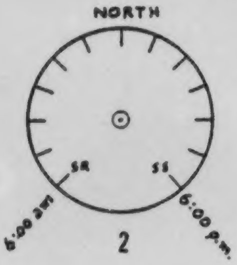
1. time on cleaning power.
2. temperature on cleaning power.
3. detergent brand on cleaning power.
4. bleach on cleaning power.
5 method on cleaning power.
7. I did not choose this problem.

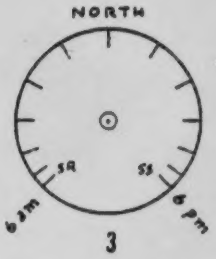
Activity: Marking Time, Part IV

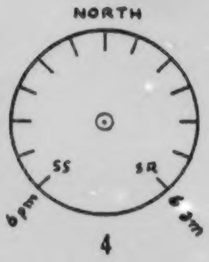
---

18. Which sundial face represents an accurately made sundial face?


NORTH
SR
SS
6:00 am
6:00 pm
1


NORTH
SR
SS
6:00 am
6:00 p.m.
2


NORTH
SR
SS
6 am
6 pm
3


NORTH
SS
SR
6 pm
6 am
4

1. 1
2. 2
3. 3
4. 4
7. I did not choose this problem.

---

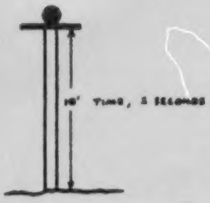
19. The oldest mechanical clocks were powered by

1. batteries.
2. springs.
3. pendulums.
4. weights.
7. I did not choose this problem.

Activity: The Power of Humans, Horses, and Other Machines

---

20. Becky wanted to find out how much horsepower a falling ball would produce. She placed a one pound ball on a 10 foot stand, as shown. She pushed the ball and timed its fall.

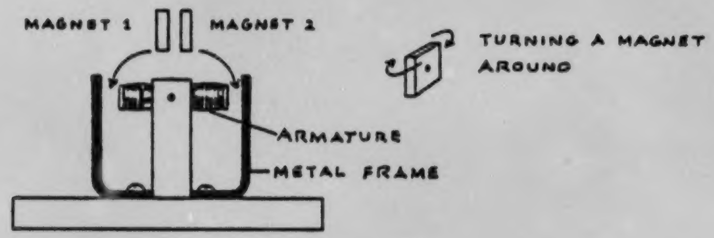

10' Time, 2 seconds

1. She can't measure horsepower that way.
2. She doesn't have all the measurements she needs.
3. She has done all she needs to do except some calculations.
4. She needs to throw the ball from the ground up to the stand.
7. I did not choose this problem.

Activity: Machine Shop

---

21. Joan experimented with magnets and an electric motor. She arranged magnets #1 and #2 so they stuck together. Then she placed them on the parts as shown.



1. The motor won't run as she has assembled it.
2. The motor will run as she has assembled it.
3. If she turns magnet #1 around, the motor will still run.
4. If she turns magnet #2 around, the motor will still run.
7. I did not choose this problem.

---

22. To do work, all machines must have

1. an armature.
2. a source of energy.
3. pulleys or gears.
4. a piston.
7. I did not choose this problem.

Activity: King Coal, Parts I and II

---

23. If Doug heats coal in a test tube, he will find that

1. it changes into an ash with no other products.
2. it changes into liquids, and gases that will burn.
3. it changes into gases and liquids, and a solid remains.
4. it is not affected by heating. It has to burn to change.
7. I did not choose this problem.

---

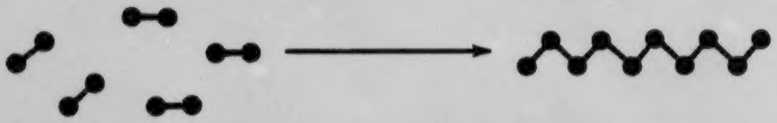
24. Many metal ores contain metals combined with oxygen. To get the pure metal, oxygen has to be chemically removed from the ore. What material is needed to do this?

$$\text{Metal ore} + \underline{\quad ? \quad} \longrightarrow \text{metal} + \text{gases}$$

1. coal
2. coal tars
3. coal gases
4. coke
7. I did not choose this problem.

Activity: The Plastic World, Part II

25. The invention represented below made many small molecules join together into long-chain ___________.



1. distillates
2. tars
3. chemicals
4. polymers
7. I did not choose this problem.

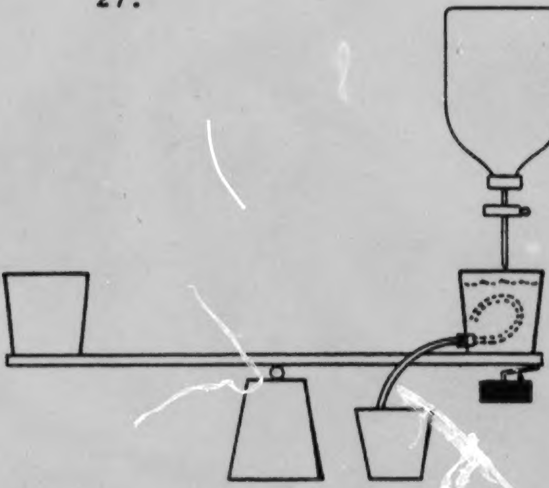
Activity: Automatic Controls, Part II

26. Which of the following is an example of an automatic control?

1. A light switch.
2. An on-off switch on a TV set.
3. A cycle switch on a washing machine.
4. A starter switch on a car.
7. I did not choose this problem.

510

27.



Jerry tried to design a control system that would go on-off-on-off several times during a 5 minute period. He fixed the flow of water into the cup so that the bent tube would be covered with water all the time. What will happen?

1. The switch will be pressed down all the time.
2. The switch will be up all the time.
3. The switch will be pressed down and released, down and released, and so on.
4. The switch will be pressed down, released, and then stay released.
7. I did not choose this problem.

Activity: Computers, Part II

---

28. The slide rule, Pascal's calculator, the abacus and the computer solve problems

    1. more correctly than people.
    2. more slowly than people do.
    3. in the same way as people.
    4. but have no memory.
    7. I did not choose this problem.

---

29. The storage of information in the brain is like information storage in what part of the computer?

    1. input bars
    2. electric switches
    3. output lights
    4. program
    7. I did not choose this problem.

Activity: General

30. An invention that has changed the least over the past two thousand years is

1. paper.
2. clocks.
3. cameras.
4. airplanes.
5. shoes.
7. I did not choose this problem.

Objective Problems: Evaluation Period 9

Read each problem carefully. If you choose to answer a problem, circle the one number of the best answer. If you do not wish to answer the problem, circle response 7.

Be careful. Several answers may be correct or partly correct, but one answer is best. The best answer may include more accurate information than others. It may be more complete, that is, it may include more of a subject. Think before you circle your response.

To help you, problems are grouped by activity. Solve as many of the problems as you can. This time we are not asking you to give reasons for your choice. We now have enough information on choice to help us solve our problems. Thanks.

When you have marked each of the 15 items, either with a 7 or your response choice, you have completed this activity. At some time we need to have you record your responses from this booklet on the machine-scored form labeled, "Objective Problems: Evaluation Period 9." Thanks again.

OBJECTIVE PROBLEMS: Evaluation Period 9

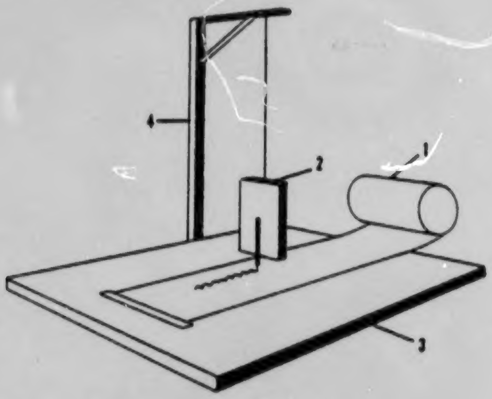
Activity: Shelter, Part I

---

31. Which statement is the most accurate statement about shelters?

    1. Both people and animals build a variety of kinds of shelters.
    2. People build a variety of kinds of shelters, but each kind of animal builds one kind of shelter.
    3. Animals build a variety of kinds of shelter, but each kind of people builds one kind of shelter.
    4. Neither people nor animals build a variety of kinds of shelters.
    7. I did not choose this problem.

Activity: Here Comes an Earthquake, Parts I, II, and IV

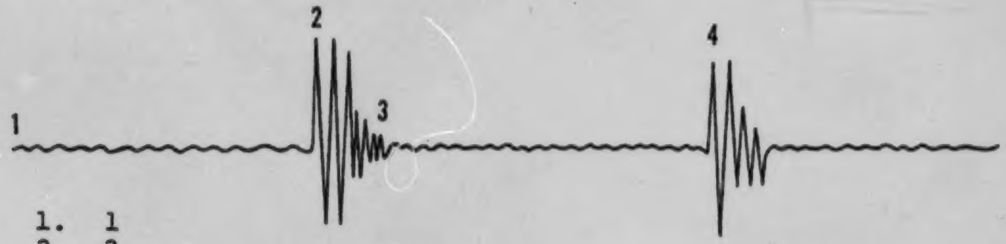


32. When an earthquake occurs, the part of the seismograph that does not move is the

    1. paper.
    2. weight.
    3. foundation.
    4. support.
    7. I did not choose this problem.

---

33. The "S" wave of this earthquake arrived at point



1. 1
2. 2
3. 3
4. 4
7. I did not choose this problem.

---

34. Seismograms give information about

1. where earthquakes will happen.
2. how earthquakes are caused.
3. how strong earthquakes were.
4. when earthquakes will happen.
7. I did not choose this problem.

Activity: Hurricane Alert, Parts I, II, and General

---

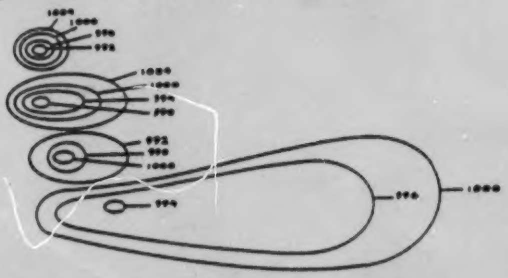
35. Early warning information about hurricanes in the 1930's came mainly from

1. satellite photographs.
2. airplane reconnaissance.
3. radar stations on land.
4. radio reports from ships at sea.
7. I did not choose this problem.

---

36. Which of the following storms, as shown by isobar charts, appears to be most severe?

1.
2.
3.
4.

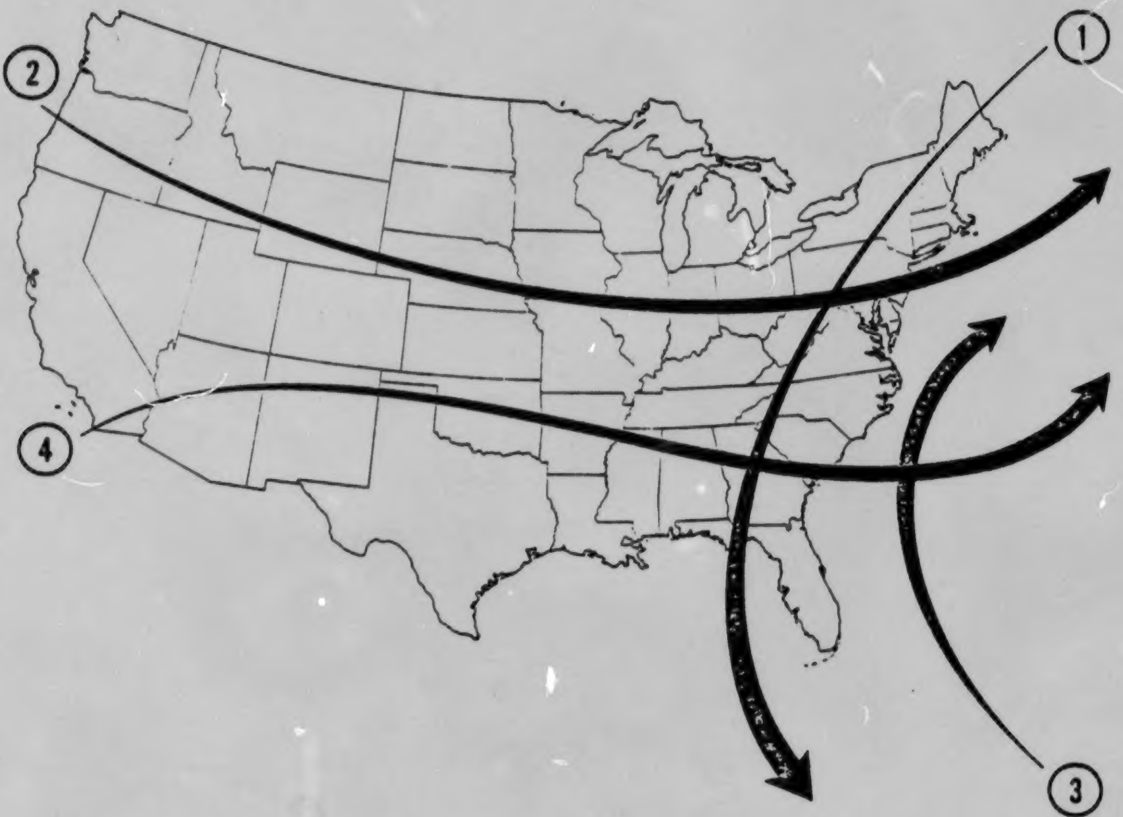


7. I did not choose this problem.

---

37. Which is the most usual path for hurricanes in the U. S.?

1. 1
2. 2
3. 3
4. 4
7. I did not choose this problem.



Activity: Kidney Machine, Parts I and II

---

38. A kidney machine

    1. cleans the kidneys.
    2. is easily available.
    3. is inexpensive.
    4. helps or replaces the kidneys.
    7. I did not choose this problem.

---

39. The most important function of the kidney is to

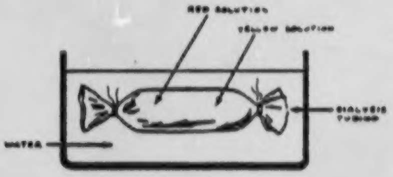
    1. remove waste products from the blood.
    2. remove waste products from the urine.
    3. absorb nutrients from the urine.
    4. absorb nutrients from the blood.
    7. I did not choose this problem.

---

40. Blood is washed by a kidney machine. The method is dialysis. As the blood is pumped through the dialysis tubing

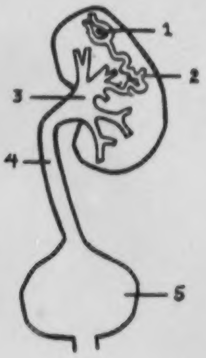
    1. blood cells squeeze out through the holes in the tubing and are washed away.
    2. water is removed from the blood and washed away.
    3. poison and body wastes pass through holes in the tubing and are washed away.
    4. blood cells are added to the body.
    7. I did not choose this problem.

41.



Wayne set up dialysis tubing with red and yellow solutions inside. He tied the tubing and placed it in water. What process does this demonstration represent?

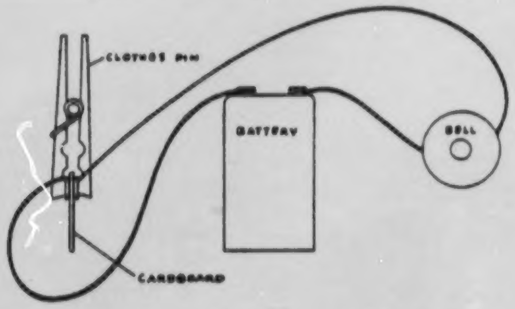
    1. Wastes leaving the blood.
    2. Blood leaving the kidney.
    3. Food leaving the blood.
    4. Food leaving the kidney.
    7. I did not choose this problem.



42. The part of the kidney that commonly causes the most serious trouble is:

    1. 1
    2. 2
    3. 3
    4. 4
    5. 5
    7. I did not choose this problem.

Activity: Protecting Property and Life



43. In the diagram, the bell would

    1. ring because current can go from the battery to the bell.
    2. ring because current can go from the battery to the bell and back.
    3. not ring because current won't go through the cardboard.
    4. not ring because current won't go through the clothespin.
    7. I did not choose this problem.

Activity: War Machines

A. tank
B. musket
C. atom bomb
D. mace
E. catapult

44. Which list below gives the war machines in order from oldest to newest?

1. E, B, A, D, C
2. B, E, A, C, D
3. D, E, A, B, C
4. E, D, B, A, C
7. I did not choose this problem.

Activity: All Module

---

45. Which inventions depend on magnetic fields to work?

1. electric motors and solenoids
2. kidney machines and dialysis tubing
3. piston engines and pendulum clocks
4. cameras and seismographs
7. I did not choose this problem.

INVENTION

Self-rating Problems

Circle the number in Column I where you would rate yourself on each statement. Circle the number in Column II that compares these work habits with your work habits during FEELING FIT.

Your teacher will make ratings, too, by putting X's on the rating scale.

	Column I. Work Habits During INVENTION					Column II. In Comparison to FEELING FIT, I have:				
	Most of the time		About half the time		Not often	Improved		About the same		Not as well
I work independently--I don't need to be supervised.	1	2	3	4	5	1	2	3	4	5
I try even if the reading is hard for me.	1	2	3	4	5	1	2	3	4	5
I choose another activity to do when I'm waiting for long-term things to happen.	1	2	3	4	5	1	2	3	4	5
I do my part of clean-up and management of materials.	1	2	3	4	5	1	2	3	4	5
I do my part when I work with others on an activity.	1	2	3	4	5	1	2	3	4	5
I start a new activity as soon as I finish one.	1	2	3	4	5	1	2	3	4	5
I read activities carefully before I start work on them.	1	2	3	4	5	1	2	3	4	5
I contribute to discussions about activities when I work with others.	1	2	3	4	5	1	2	3	4	5

	Column I. Work Habits During INVENTION					Column II. In Comparison to FEELING FIT, I have:				
	Most of the time		About half the time		Not often	Improved		About the same		Not as well
I try to help the group stay on the subject when we discuss activities.	1	2	3	4	5	1	2	3	4	5
When an activity I have started gets hard to do, I keep trying to figure it out.	1	2	3	4	5	1	2	3	4	5
I keep working on the activity I have chosen even when there are other interesting things going on in the class.	1	2	3	4	5	1	2	3	4	5

Calculating your average Work Habits Score.

Column I. Add the 11 numbers you have circled in Column I. Put the number here. ________ Divide this number by 11, the number of statements. This is your average Work Habits Score. Put the number here. ________ Use only one decimal point in your calculations. The best score you could have is 1.0. The poorest score is 5.0. Calculate your teacher's rating in the same way. Record that average here. ________ Explain any differences in the two ratings.

Column II. Add the 11 numbers you circled in Column II. Put the score here. ________ Divide by 11. Put the average here. ________ Use only one decimal point in your calculations. The best score you could have is 1.0, the poorest score is 5.0.

Skills Development

Circle the number that expresses your opinion about each statement.

	Strongly Agree	Agree	?	Disagree	Strongly Disagree
I was able to make all of the inventions I started to make.	1	2	3	4	5
All of the inventions I made worked.	1	2	3	4	5
I can explain *how* all of the inventions I made work.	1	2	3	4	5
I read *The Way Things Work* when the activity suggested it.	1	2	3	4	5
I read *How It Works* when the activity suggested it.	1	2	3	4	5
I learned how to make new products in INVENTION.	1	2	3	4	5
I learned how to use new tools in INVENTION.	1	2	3	4	5

Calculating Your Average for Skills Development.

There are seven statements. Add the seven numbers you circled. Write the total here. ________ Divide the sum by 7. Put your average here. ________ Use only one decimal point in your calculations. What is the best score you could have? Why? What is the poorest score?

Calculate the average rating your teacher has made using the same procedure. Put the sum here. ________ Put the average here. ________

INVENTION Questionnaire

You will notice that Choose Your Problems have been left out of this module. We felt that we now have enough information from this kind of problem for our evaluation of Human Sciences. We are asking that you complete the INVENTION Questionnaire. This questionnaire is on one of the machine-scored forms so you only need to complete that form. It is for our use by the project staff, and is not part of evaluation for you. Thanks for helping us with this questionnaire.

CONCEPTUAL DESIGN OF THE INVENTION QUESTIONNAIRE

The INVENTION Questionnaire was administered to assist the Human Sciences Project Staff in assessing the student's perception of a module with different kinds of activities. The activities in INVENTION were reduced in number and increased in the number of parts. The hypothesis in module design was that toward the end of the eighth grade students might be interested in pursuing particular ideas in depth. The INVENTION Module provided activities that began with Part I, usually a "hands-on" activity. This was followed by many opportunities to increase depth of understanding in a variety of ways with parts. INVENTION contained twenty-eight activities from two to thirteen parts.

The INVENTION Questionnaire has three conceptual dimensions: 1) the structure of activities, 2) readability, and 3) evaluation. The items are Likert scale items. Scoring protocols are set with strongly agree given a value of 1 and strongly disagree a value of 5. Polarities (+,-) of each item are indicated in parentheses below. All items are scored to be additive, that is, positive polarity items are scored strongly agree with a value of 1 and negative polarity items are scored with strongly disagree as a value of 1.

The "Structure of Activities" items are 1(+), 4(+), 7(-), 10(+), 13(+), and 15(-). The second dimension of the INVENTION Questionnaire included items attempting to assess "Readability" of the activity. These were items 2(-), 5(-), 8(+), and 11(+). The third set of items in the INVENTION Questionnaire were designed to assess student feelings about the evaluation activities in the INVENTION Module. These items were (3+), 6(+), 9(+), 12(-), 14(-), and 16(-).

The items in the INVENTION Questionnaire are Likert scale items with five dimensions from "strongly agree" to "strongly disagree."

Three hypotheses can be tested based upon the INVENTION Questionnaire: 1) students like the long activities with many parts--a mean of 4.0 or above would support this hypothesis, 2) the readability--the students find the activity easy to understand without many words they do not understand--this hypothesis would be verified with a score of 4.0 or above, 3) students like the evaluation activities in INVENTION. Again, this hypothesis would be supported if the mean scores for this dimension are 4.0 or above.

JTR:lls
11/5/76

INVENTION QUESTIONNAIRE

The purpose of this questionnaire is to determine students attitudes toward activities in INVENTION. The scale will be a five choice Likert scale: strongly agree, agree, neutral, disagree, strongly disagree. Three dimensions (conceptual item clusters) are presented, along with scoring procedures and hypotheses to be tested.

Dimension 1: Do students like the long activities with many parts that characterize INVENTION?

	ITEMS	SCALE	LIKED	NOT LIKED
4	I like activities that have one part best.	1-5	5 [reverse scoring]	1
10	I liked the activities in INVENTION because doing the parts helped me learn more about one thing.	1-5	1 [direct scoring]	5
13	I liked INVENTION because I could work for a long time on the same thing.	1-5	1 [direct scoring]	5
1	I liked INVENTION because I didn't have to make as many choices as in other modules.	1-5	1 [direct scoring]	5
15	I would rather have shorter activities than the ones in INVENTION.	1-5	5 [reverse scoring]	1
7	Many activities in INVENTION were too long.	1-5	5 [reverse scoring]	1

Hypothesis: Students will not like the long many-part activities of INVENTION.

Confirmation: Mean Score of 4.0 or higher on Dimension 1.

Refutation: Mean Score of 2.0 or lower on Dimension 1.

Dimension 2: Do students think the activities are written simply and clearly?

	ITEMS	SCALE	YES	NO
2	I found directions for many activities hard to follow.	1-5	5 [reverse scoring]	1
8	I could read and understand the directions for activities.		1 [direct scoring]	5
11	Explanations of how inventions work were easy to understand.		1 [direct scoring]	5
5	There were many words in the activities that I didn't understand.		5 [reverse scoring]	1

Hypothesis: Activities are readable and clear.

Confirmation: Mean Score of 2.0 or less in Dimension 2.

Refutation: Mean Score of 4.0 or greater in Dimension 2.

Dimension 3: Do students like the objective problems?

	ITEMS	SCALE	YES	NO
3	I like to be able to choose the Objective Problems I want to do.	1-5	1 [Direct Scoring]	5
9	My answers to Objective Problems show my understanding of an activity pretty well.	1-5	1 [Direct Scoring]	5
12	We should be required to solve Objective Problems for activities we have done.	1-5	5 [Reverse Scoring]	1
16	The Objective Problems are hard to understand.	1-5	5 [Reverse Scoring]	1
6	I understand how the Objective Problems are related to activities.	1-5	1 [Direct Scoring]	5
14	I don't see how I could have learned the answers to Objective Problems from the activity.	1-5	5 [Reverse Scoring]	1

Hypothesis: Students will report that they do not like the evaluation activities.

Confirmation: Mean Score of 4.0 or greater in Dimension 3.

Refutation: Mean Score of 2.0 or less in Dimension 3.

INVENTION Questionnaire

Name ____________________

Teacher ____________________

Date ____________________

(Mark only in the space indicated by the arrow.)

We need your help in evaluating the INVENTION module. This is your chance to help us evaluate our work. Please mark the following problems.

Mark 1 for strongly agree.
Mark 2 for agree.
Mark 3 for ?
Mark 4 for disagree.
Mark 5 for strongly disagree.

I liked INVENTION because I didn't have to make as many choices as in other modules. →

I found directions for many activities hard to follow. →

I like to be able to choose the Objective Problems I want to do. →

I like activities that have one part best. →

There were many words in the activities that I didn't understand. →

I understand how the Objective Problems are related to activities. →

Many activities in INVENTION were too long. →

I could read and understand the directions for activities. →

My answers to Objective Problems show my understanding of an activity pretty well. →

I liked the activities in INVENTION because doing the parts helped me learn more about one thing. →

Explanations of how inventions work were easy to understand. →

We should be required to solve Objective Problems for activities we have done. →

I liked INVENTION because I could work for a long time on the same thing. →

I don't see how I could have learned the answers to Objective Problems from the activity. →

I would rather have shorter activities than the ones in INVENTION. →

The Objective Problems are hard to understand. →

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INVENTION, Objective Problems

Name ____________________

Teacher ____________________

Date ____________________

Evalution Periods 7 & 8

Directions: Mark your answers in the space provided. Part of the question is repeated to help you keep your place. Check to be sure you have marked one choice for every problem.

EVALUATION PERIOD 7

1. Which is the correct series...? →
2. Which arrangement of photos...? →
3. Which ones will print...? →
4. ...medium of exchange? →
5. Money "works"... →
6. The best exposure... →
7. The most important invention... →
8. The basic problem Bell solved... →
9. Which statement...? →
10. Compare Figures 1 and 2. →
11. The invention... →
12. In the diagram... →
13. The story "The Mary Celeste Move"... →
14. Look at the drawings... →
15. Which one of the following... →

EVALUATION PERIOD 8

16. The heddle... →
17. John was trying to find... →
18. Which sundial face...? →
19. The oldest mechanical clocks... →
20. Becky wanted to find out... →
21. Joan experimented with magnets... →
22. To do work... →
23. If Doug heats coal... →
24. Many metal ores... →
25. The invention... →
26. Which of the following...? →
27. Jerry tried to design... →
28. The slide rule... →
29. The storage of information... →
30. An invention... →

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Directions: Mark your answers in the space provided. Part of the question is repeated to help you keep your place. Check to be sure you have marked one choice for every problem.

EVALUATION PERIOD 9

31. Which statement is...? →
32. When an earthquake occurs... →
33. The "S" wave... →
34. Seismograms... →
35. Early warning information... →
36. Which of the following storms...? →
37. Which is the most usual path...? →
38. A kidney machine... →
39. The most important function... →
40. Blood is washed... →
41. Wayne set up dialysis... →
42. The part of the kidney... →
43. In the diagram... →
44. Which list below...? →
45. Which inventions depend...? →

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Keys to Objective Problems

Evaluation Period 7	Evaluation Period 8	Evaluation Period 9
1. 2	16. 1	31. 2
2. 4	17. 2	32. 2
3. 4	18. 1	33. 4
4. 2	19. 4	34. 3
5. 4	20. 3	35. 4
6. 3	21. 2	36. 1
7. 4	22. 2	37. 3
8. 3	23. 3	38. 4
9. 1	24. 4	39. 1
10. 2	25. 4	40. 3
11. 2	26. 3	41. 1
12. 3	27. 1	42. 1
13. 5	28. 1	43. 3
14. 4	29. 2	44. 4
15. 1	30. 5	45. 1

INVENTION: Self-Rating Problems

Name ____________________

Teacher ____________________

Date ____________________

(Mark only in the spaces indicated by the arrow.)

Column I. Work Habits:
Mark 1 for most of the time
Mark 2 (in between 2 and 3)
Mark 3 for about half the time
Mark 4 (in between 3 and 5)
Mark 5 for not often

I work independently—I don't need to be supervised. →

I try even if the reading is hard for me. →

I choose another activity to do when I'm waiting for long-term things to happen. →

I do my part of clean-up and management of materials. →

I do my part when I work with others on an activity. →

I start a new activity as soon as I finish one. →

I read activities carefully before I start work on them. →

I contribute to discussions about activities when I work with others. →

I try to help the group stay on the subject when we discuss activities. →

When an activity I have started gets too hard to do, I keep trying to figure it out. →

I keep working on the activity I have chosen even when there are other interesting things going on in the class. →

Column II. In Comparison to FEELING FIT, I have:
Mark 1 for improved
Mark 2 (in between 1 and 3)
Mark 3 for about the same
Mark 4 (in between 3 and 5)
Mark 5 for not at all

I work independently—I don't need to be supervised. →

I try even if the reading is hard for me. →

I choose another activity to do when I'm waiting for long-term things to happen. →

I do my part of clean-up and management of materials. →

I do my part when I work with others on an activity. →

I start a new activity as soon as I finish one. →

I read activities carefully before I start work on them. →

I contribute to discussions about activities when I work with others. →

I try to help the group stay on the subject when we discuss activities. →

When an activity I have started gets too hard to do, I keep trying to figure it out. →

I keep working on the activity I have chosen even when there are other interesting things going on in the class. →

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INVENTION: Self-Rating Problems

Name ____________________________

Teacher __________________________

Date _____________________________

(Mark only in the space indicated by the arrow.)

Skills Development. Transfer your self-ratings to this form beginning with:
Mark 1 for strongly agree.
Mark 2 for agree.
Mark 3 for ?
Mark 4 for disagree.
Mark 5 for strongly disagree.

I was able to make all of the inventions I started to make. →

All of the inventions I made worked. →

I can explain *how* all of the inventions I made work. →

I read *The Way Things Work* when the activity suggested it. →

I read *How It Works* when the activity suggested it. →

I learned how to make new products in INVENTION. →

I learned how to use new tools in INVENTION. →

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MY ACTIVITY RECORD

Name ______________________

Teacher ______________________

Date ______________________

INVENTION

Look at your INVENTION Folder. For each part of each activity:

Mark 1 if you circled the part in *both* columns.
Mark 2 if you circled the part in the first column, but not in the second.
Mark 3 if you circled the part in the second column, but not in the first.
Mark 4 if you didn't circle the part in either column.

Paper I →
Paper II →
Paper III →
Paper IV →
Paper V →
Paper VI A →
Paper B →
Printing I A →
Printing B →
Printing C →
Printing II A →
Printing B →
Printing C →
Printing D →
Printing III →
Printing IV →
Money-Money-Money I A →
Money-Money-Money B →
Money-Money-Money II A →
Money-Money-Money B →

The Camera I →
The Camera II →
The Camera III →
The Camera IV →
The Telephone I A →
The Telephone II →
The Telephone B →
The Telephone C →
The Telephone III →
The Telephone IV →
Technology and Music I A →
Technology and Music B →
Technology and Music II A →
Technology and Music B →
Technology and Music C →
Technology and Music III →
Technology and Music IV →
The Bicycle I →
The Bicycle II →
The Bicycle III →
The Bicycle IV →

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Mark 1 if you circled the part in *both* columns.
Mark 2 if you circled the part in the first column, but not in the second.
Mark 3 if you circled the part in the second column, but not in the first.
Mark 4 if you didn't circle the part in either column.

The Bicycle V →
The Bicycle VI →
The Automobile I →
The Automobile II →
The Automobile III →
Airplanes I →
Airplanes II A →
Airplanes B →
Airplanes III A →
Airplanes B →
Airplanes C →
Airplanes D →
Airplanes E →
Airplanes F →
Space Travel I →
Space Travel II A →
Space Travel B →
Space Travel C →
Space Travel D →
Weaving I →
Weaving II →
Weaving III →
Weaving IV →
Scrub-A-Dub-Dub I →
Scrub-A-Dub-Dub II A →

Scrub-A-Dub-Dub B →
Scrub-A-Dub-Dub C →
Scrub-A-Dub-Dub D →
Scrub-A-Dub Dub-III →
Scrub-A-Dub-Dub IV →
Shoes I →
Shoes II A →
Shoes B →
Shoes C →
Marking Time I →
Marking Time II →
Marking Time III →
Marking Time IV →
Marking Time V →
The Power of Humans, Horses, and Other Machines I →
The Power of Humans, Horses, and Other Machines II →
The Power of Humans, Horses, and Other Machines III →
The Power of Humans, Horses, and Other Machines IV →
The Power of Humans, Horses, and Other Machines V →

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MY ACTIVITY RECORD

Name ______________________

Teacher ______________________

Date ______________________

INVENTION

Look at your INVENTION Folder. For each part of each activity:

Mark 1 if you circled the part in *both* columns.
Mark 2 if you circled the part in the first column, but not in the second.
Mark 3 if you circled the part in the second column, but not in the first.
Mark 4 if you didn't circle the part in either column.

- **Machine Shop I** →
  - **Machine Shop II A** →
  - **Machine Shop B** →
  - **Machine Shop III A** →
  - **Machine Shop B** →
  - **Machine Shop IV A** →
  - **Machine Shop B** →
- **King Coal I** →
  - **King Coal II A** →
  - **King Coal B** →
  - **King Coal C** →
  - **King Coal III** →
- **The Plastic World I** →
  - **The Plastic World II** →
  - **The Plastic World III** →
  - **The Plastic World IV** →
  - **The Plastic World V** →
- **Automatic Controls I** →
  - **Automatic Controls II** →
  - **Automatic Controls III** →
  - **Automatic Controls IV** →
- **Computers I A** →
  - **Computers B** →
  - **Computers C** →
  - **Computers II A** →
  - **Computers B** →
  - **Computers C** →
  - **Computers III** →
- **Shelter I** →
  - **Shelter II** →
  - **Shelter III** →
  - **Shelter IV** →
- **Food Preservation I A** →
  - **Food Preservation B** →
  - **Food Preservation C** →
  - **Food Preservation II** →
  - **Food Preservation III A** →
  - **Food Preservation B** →
  - **Food Preservation IV A** →
  - **Food Preservation B** →
  - **Food Preservation V** →
  - **Food Preservation VI** →

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Mark 1 if you circled the part in *both* columns.
Mark 2 if you circled the part in the first column, but not in the second.
Mark 3 if you circled the part in the second column, but not in the first.
Mark 4 if you didn't circle the part in either column.

Food Preservation VII →
Food Preservation VIII A →
Food Preservation B →
Here Comes an Earthquake I →
Here Comes an Earthquake II →
Here Comes an Earthquake III →
Hurricane Alert I →
Hurricane Alert II →
Kidney Machine I →
Kidney Machine II →
Kidney Machine III →
Kidney Machine IV →
Protecting Property and Life I →
Protecting Property and Life II →
Protecting Property and Life III A →
Protecting Property and Life B →
Protecting Property and Life C →
Protecting Property and Life IV →
War Machines I →
War Machines II →
War Machines III →
Introduction to Invention I →
Introduction to Invention II →
Introduction to Invention III →

You and Other Great Inventors I →
You and Other Great Inventors II →
You and Other Great Inventors III →

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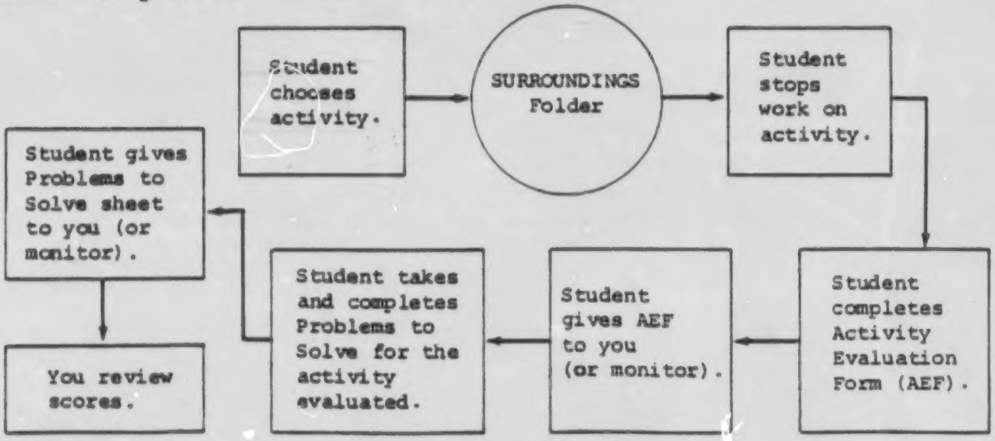
FACILITATING SELF-EVALUATION

EVALUATION ACTIVITIES

The evaluation procedures from SURROUNDINGS differ from your past evaluation experiences. We are trying to react positively to the student reaction to what appeared to be longer and longer evaluation activities as the year has progressed.

1. The SURROUNDINGS Folder needs to have dates recorded when students begin and stop working on each activity. They may have several activities going at the same time, so overlap can be expected.
2. Two evaluation activities will be completed when each student completes or stops working on each activity chosen.
3. You will need a folder to hold evaluation materials for each student.
4. End of Problem Area Activities will be mostly mechanical.

This flow chart will give an overview of evaluation procedures for SURROUNDINGS up to, but not including, each evaluation period.


Student chooses activity.
SURROUNDINGS Folder
Student stops work on activity.
Student completes Activity Evaluation Form (AEF).
Student gives AEF to you (or monitor).
Student takes and completes Problems to Solve for the activity evaluated.
Student gives Problems to Solve sheet to you (or monitor).
You review scores.

Evaluation Materials and Time of Use

Title	Description	Timing	Who Keeps It?
SURROUNDINGS Folder	Lists activities by problem area. Asks for Date Started, Date Activity Evaluation Form Completed, Date Objective Problems Completed.	Daily recording by students. They may need to be reminded, and each day's date put on the board.	Held by each student. Used at Evaluation Periods as reference.
Student Guide to Evaluation	A booklet explaining the student's responsibilities for evaluation in SURROUNDINGS.	Give to students on first or second day of module. Go over new procedures.	Students
Activity Evaluation Form	Only one form, one copy to be completed for each activity the student is to be accountable for.	Should be available at all times. Completed by each student when the student stops work on each activity.	Student gives form to you on day of completion. You hold the form for immediate feedback. Return to the student at an evaluation period.
Problems to Solve	There is one pad of Problems to Solve for each activity.	When students turn in an Activity Evaluation Form they get the Problems to Solve Sheet for that activity.	Student gives the completed Problems to Solve Sheet to you for scoring. You return it to the student at an evaluation period.
Self-Rating Problems	One page of machine-scored forms.	Hand out and have students complete this at the end of the module.	After students complete it and get data, collect them for mailing.
My Activity Record	One page of machine-scored forms.	Hand out and have students complete this at the end of the module.	Collect them for mailing.

Now that you have an overview of evaluation procedures for SURROUNDINGS, the following sections provide or refer to the details. Two sections devoted to details are first, a section on daily teacher involvement in evaluation and second, your role in the end of a problem area evaluation period.

Your Daily Role in Evaluation

Evaluation for SURROUNDINGS is planned to place short evaluation activities at the completion of each activity. Hopefully, this plan will require less time in large blocks.

Your initial role is to maintain the climate you have established in which each student is encouraged to initiate record keeping. Dates on the chalkboard will help students with accurate date-recording in their SURROUNDINGS Folders.

Activity Evaluation Forms (_Machine Scorable_). Students should have access to copies of Activity Evaluation Forms. They are to be completed upon termination of work on an activity. This, we hope, will provide a regular, steady flow of information to you. Use these forms to help diagnose student problems, to recognize growth, and to provide immediate feedback, both to you and to the student. The short-answer essay questions are being used in lieu of Choose Your Problem. All previous suggestions for scoring or coding Choose Your Problem responses may be applied to the responses on the Activity Evaluation Form.

Make comments, assign grades, or assist the student in ways you know will facilitate growth. Please do not mark in the right-hand margin. We will use that for coding. Return these to students for feedback, but either assure they hold them without them becoming damaged, or have them stored in the folder mentioned in Item 3, page 45. Students will not need them after seeing your comments. All Activity Evaluation Forms are to be mailed to HSP at the end of the year.

Problems to Solve. A pad of Problems to Solve is provided for each activity--the problems are activity specific. Students should write their responses on the sheet and turn it into you the day they complete it. The problems are a mixture of essays, drawings, and a few multiple-choice problems.

Scoring and Grading. You may wish to score each paper as a whole, or each part separately. Data from the Activity Evaluation Form plus the Problems to Solve for the activity will enable you to provide a grade for each activity, if you wish. You may wish to have students grade their work on each activity, after reading comments you have made on their two papers prior to assigning a final grade for the activity.

Problem Area Evaluation

Upon completion of each Problem Area, or at the end of the year, you may wish to have students summarize some of the evaluation activities. The Mapping My Progress in Human Sciences booklet will be used, but with modifications.

Evaluation Period 10 can be used for People, People, People, and Evaluation Period 11 for Open Spaces. Students can complete the Activities Accountability Graph in the usual way, using the SURROUNDINGS Folder as a data source. At the bottom of the page (p. 3) substitute Evaluation Period 11 for Evaluation Period 12, which is omitted.

The Objective Problems Graph cannot be used with the modifications made in Problems to Solve.

The Self-Rating Problems are supplied only on machine-scored forms. Please have students complete these at the end of the module. Directions for graphing their average scores are provided in the Student Guide to Evaluation for SURROUNDINGS.

My Activity Record is also to be completed at the end of the module.

Students will need to complete their Mapping My Progress in Human Sciences, Level III booklets. Column 12 on the graphs will not be used. Students are instructed to change Evaluation Period 12, to Evaluation Period 11, when summary questions for SURROUNDINGS are requested.

Student Guide to Evaluation
for
SURROUNDINGS

A Level III
Human Sciences Module

Experimental Edition, 1976
Human Sciences Program

INTRODUCTION*

The evaluation activities for SURROUNDINGS will be a little different from those for other Level III modules. We are making these changes to try to cut down the time it takes to do evaluation activities at the end of modules.

SURROUNDINGS Folder

The SURROUNDINGS Folder provides places for you to record the date when you started working on an activity. Be sure to record the date on the day you started each activity. This will make your records more accurate than if you wait to do it at some later time.

Two additional dates are asked for. Directions for completing the two activities listed will be given below. Again, your responsibility is to keep your SURROUNDINGS Folder up-to-date and accurate. Record the dates requested on the day you complete each Activity Evaluation Form and each Problems to Solve sheet.

Activity Evaluation Form

Activity Evaluation Forms are provided in the module box. Every time you complete all you are going to do on an activity--all or part of it--get an Activity Evaluation

---

*Page numbers at top of page refer to pages in Student Guide.

Form. Complete the form, being careful not to wrinkle it. Please write your answers to the questions in the spaces provided. Be careful not to write into the space on the right side, marked by the green line. Thanks.

When you have completed the form for an activity, record the data in your SURROUNDINGS Folder. Then give the completed form to your teacher. Now you're ready to solve problems about the activity.

Problems to Solve

There is one Problems to Solve sheet for each activity. Your teacher will tell you how to get the form you need. Try to choose at least one problem to solve. Choose as many as you wish. If you do not choose to solve any of the problems for the activity, write your reasons for not choosing any problems.

When you have completed Problems to Solve for the activity, turn it in to your teacher. Be sure to record the date in your SURROUNDINGS Folder. You're now ready to choose another activity.

Evaluation Period 10

When you complete the People, People, People Problem Area you can summarize your evaluation activities. Get out your Mapping My Progress in Human Sciences booklet. You can complete the Key to Evaluation Period (p. 2) and the Activity Accountability Graph (p. 3). Mark your data for People, People, People at Evaluation Period 10 on the graph.

You can also complete the Objective Problems Graph table on p. 4.

To calculate the percentage of problems chosen you will need all of the Problems to Solve sheets you have done in the People, People, People Problem Area. Count the number of problems on each sheet, add all the problems you could have possibly chosen. This sum should be written to replace the number 15 (under line b, p. 4). Then count the number of problems you answered. This sum should be written on space (a). You probably cannot calculate the percentage of problems chosen that you answered correctly. You can, however, plot the percentage of problems chosen on the graph on p. 5. Record your answer on the line for Evaluation Period 10.

Evaluation Period 11

Evaluation Period 11 is the last module evaluation period for Human Sciences, Level III. Period 12 will be omitted. At Period 11 you will need to complete the following activities:

- My Activity Record (a machine-scored form)
- Activity Accountability Graph in Mapping My Progress in Human Sciences
- Objective Problems Graph in Mapping My Progress in Human Sciences
- Self-Rating Problems (a machine-scored form)
- Self-Rating Graphs in Mapping My Progress in Human Sciences

You will not be doing a Problems to Solve activity at this time since you did that each time you completed an activity.

My Activity Record. Once again we ask you to carefully complete a My Activity Record machine-scored form. Use your SURROUNDINGS Folder as a source of information. For example, we found that people choose to answer problems just as often, whether they do an activity or not. In CHANGE, 45% of the students who completed "Change and Change Again" chose to answer Objective Problem 11. But, 45% of the students who did not do the activity also answered Problem 11. We first wonder if the My Activity Record data are accurate when we see this kind of result.

Self-Rating Problems. Self-Rating Problems are provided only on machine-scored forms for this module. You will only need to mark the problems once, but you won't have a copy of the problems. Follow the directions on the Self-Rating Problems form. Before you give them to your teacher, you will need to record some data here. You cannot do this until you have completed responding to the Work Habits and Skills Development parts of the Self-Rating Problems sheet. Your teacher will give you the sheet during Evaluation Period 11.

Now that you have completed both sets of problems do the following calculations.

__Work__ __Habits__. Record the number of each response; 1, 2, 3, 4, or 5 in the spaces here:

Column I   Column II

______   ______
______   ______
______   ______
______   ______
______   ______
______   ______
______   ______
______   ______
______   ______
______   ______
add ______   ______
sum ______ ______   ______

You should have responded to every problem in each column. If you didn't, do it now. Add the 11 numbers in each column to get two total scores. Place the total scores in the score spaces.

__Skills__ __Development__. Record the number of each problem you answered. Again, you should have answered every problem. If you haven't developed the skill, mark the problem (5), strongly disagree. Write the number of responses in the spaces below and add them.

______
______
______
______
______
______
______
______
add ______
sum ______

Now you can hand in your Self-Rating Problems.

Mapping My Progress in Human Sciences

For the final evaluation activities for SURROUNDINGS, you will need your Mapping My Progress booklet.

Follow the instructions for Evaluation Period 10 to complete the Activity Accountability Graph and the Objective Problems Graph.

On page 3, change the number, Evaluation Period 12 to 11. Write your interpretation of what your graph means. Do the same thing for Evaluation Period 12, on page 5.

To complete your Self-Rating Graphs on p. 7, you will need to do the following calculations:

I. Average Work Habits Scores

A. Put the Sum for Column I here ________(a)
B. Divide by 11 (a) = 11 ________(b)
C. Record (b) on you graph, I.

II. Change in Average Work Habits Scores

A. Put the Sum for Column II here ________(a)
B. Divide by 11 (a) = 11 ________(b)
C. Record (b) on your graph, II.

III. Average Skills Development Scores

A. Put the Sum here ________(a)
B. Divide by 8 (a) = 8 ________(b)
C. Record (b) on your graph, III.

On page 10 of Mapping My Progress, change Evaluation Period 12 Problems to Evaluation Period 11 Problems. Write your response to the problems for Evaluation Period 11.

You now have all of the data you need, with your Problems to Solve sheets for SURROUNDINGS, to work out a grade for the module.

Thanks for helping us with testing and evaluating Human Sciences, and good luck next year in the 9th grade.

SURROUNDINGS

ZOOM IN...ZOOM OUT

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. Did you change an object enough so that people couldn't recognize it? ____________________

   What did people think the object was?

   What was the object?

2. Draw an object (1) as you would normally see it, (2) super close, and (3) very far away. Be sure to write the name of the object. Label your drawings (1), (2), and (3).

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OUR CHANGING SURROUNDINGS

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. What did you learn from the maps about the ways your surroundings have changed?

   What evidence from your map supports your statement?

2. Mary dropped a sampling square on two maps of the same city. One map was made in 1940 and the other map in 1970. Look at the data below.

NUMBER OF HOUSES IN EACH SAMPLE

YEAR OF MAP	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	TOTAL	AVERAGE
1940	7	15	21	3	2	12	60	
1970	33	48	65	22	50	64	282	

What was the average number of houses in the sample in 1940? (Circle your choice.)

1. 6   2. 60   3. 1   4. 10

3. The difference between the average number of houses in the sample is (Circle your choice.)

   1. 342
   2. 37
   3. 47
   4. 222

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SURROUNDINGS

COUNTING TOMORROW'S CROWD

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Will the high school in your area be big enough to hold students from all the present feeder schools five years from now? Support your answer.

2.

GRADES / YEARS	7	8	9	10	11	12
Now	750	1000	1200	1250	1200	1100
1 year from now						
2 years from now						
3 years from now						
4 years from now						
5 years from now						

How many students will be in the 10th grade three years from now?

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ANIMAL MUNCHIES

PROBLEMS TO SOLVE

Name ____________________

Teacher _________________

Date ____________________

1. How did people react to the unusual foods you gave them?

   Were there any differences between age groups and sexes?

2. Refer to pages 104-134 of Biological Sciences: An Ecological Approach. In what group would you place a cow? Give your reasons?

3. If a (1)____________ eats a (2)____________, and you eat (2)____________ does it mean you ate (1)____________?

   Fill in the blanks with whatever you want to. Discuss whether the statement you have created is true or not.

4. Has this activity changed your mind about food you might eat? ______ Why or why not?

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HOW WELL DO OTHERS KNOW YOU?

Name ____________________

Teacher ____________________

Date ____________________

1. Were you right in your prediction of who knew you best? ______
   How did you choose the person?

2. Write four questions about you which could only be answered correctly by a best friend.

3. Joan and Mary picked the same questions for their questionnaire. They interviewed the same people. The answers they got were different.

   How would you account for this?

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ELECTRONIC SURROUNDINGS

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Who benefits by communicating on CB radio?

2. What are the disadvantages of communicating on CB radios?

3. Name some other parts of the electromagnetic spectrum and tell how they are important in everyday life. Use the terms "frequency" and "wave length" in your discussion.

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LIFE ON HUMANS

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Where on the human body would you find the most organisms?

   Why do organisms live there instead of other places on the body?

2. What kinds of organisms are found on the body?

   What do these organisms do to the person they are on?

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GOING TO THE DOGS

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Describe the way you did your census.

2. Compare the views of dog owners and non-dog owners about the control of dogs.

3. What is the most popular breed of dog in your census territory?

   Why is that breed most popular?

4. According to your census results, what is the main reason people have dogs for pets?

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HERE, KITTY, KITTY

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. What do cats contribute to people's surroundings?

2. What new things did you learn about cats and cat owners from your study of Cats Magazine?

560

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SURROUNDINGS

THEY PROWL BY NIGHT

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. How many different kinds of animals did you collect?

2. Where do these animals live during the daytime?

3. What do the animals you collected have in common?

4. Display any photographs you took of night prowlers and explain how you lured them.

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CAN YOU DIG IT?

Name ____________________

Teacher ________________

Date ____________________

1. Describe the number and kinds of horizons you found in one of your soil samples.

2. Describe the differences between the places you made your soil profiles (plants, animals, uses, etc.).

   Compare the profiles from these places.

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SURROUNDINGS

TO BLEND OR NOT TO BLEND?

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. How did you camouflage your golf ball?

   How long did it take others to find it?

2. Tom says, "Most kids in our school try to look alike." Sue says, "That's not true. Kids are individuals and try to look different." With whom do you agree? ________________________

   Why?

3. "People are like animals when it comes to camouflage." Do you agree or disagree? ____________________

   Why?

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SURROUNDINGS

THE BEASTS IN THE MEADOW

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. In what ways did you sort the animals you collected?

2. Do you agree or disagree with this statement: "Collecting and killing fifty insects is worthwhile in order to learn more about your surroundings." ____

   Give your reasons.

3. In what ways do scientists group insects?

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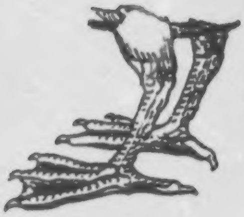
SURROUNDINGS TOOLS OF NATURE PROBLEMS TO SOLVE

Name ______________________

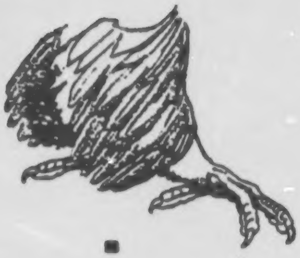
Teacher ____________________

Date ______________________

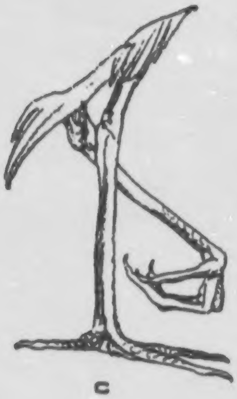
1.



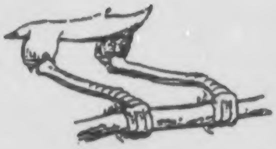
A



B



C



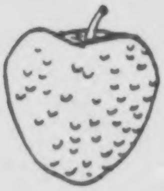
D

Which feet would you be most likely to find in a desert surroundings?

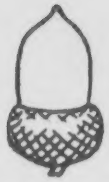
____

Why?

2.

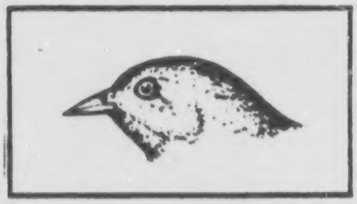


A



B

C



Which seed is the bird most likely to eat? Why?

Which seed is the bird least likely to eat? Why?

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SURROUNDINGS GREEN SCENES PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Display your project in the classroom, and explain to the class what you did.

2. Explain something new you have learned about plants from this activity.

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SURROUNDINGS

WET PETS

PROBLEMS TO SOLVE

Name ____________________

Teacher __________________

Date ____________________

1. Where in the pond or stream did you find the most animals?

   Why do you think they lived in these surroundings?

2. What animal did you select for your pet?

   What did you have to do to maintain it?

   What did you learn about it that you didn't know before?

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SURROUNDINGS

WATCH THE BIRDIE

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. What features of your feeder were most useful in attracting birds?

2. What differences did you see between males and females in birds of the same kind?

3. How did different kinds of birds behave and interact at the feeder?

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SURROUNDINGS

MOON WATCH

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. Draw earth, moon, and sun in three different arrangements. Draw another picture of how the moon would appear from the earth when in each of those positions.

2. Explain how the moon appears different at different times.

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SURROUNDINGS THE RELATIONSHIPS GAME PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Give an example that agrees or disagrees with this statement: "When we try to pick out anything we find it hitched to everything else."

2. Show correct relationships that connect each organism to every other organism by using the arrows provided. Write the names of the organisms in the boxes. (You can use any arrow more than once and do not need to use all the arrows. You can put the arrow head on either end.)

Organisms

bacteria
fox
grass
person
rabbit

Arrows

becomes →
breaks down →
decays →
depends upon →
destroys →

eats →
lives in →
pollutes →
protects →
uses up →

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MY ACTIVITY RECORD

Name ____________________
Teacher ____________________
Date ____________________

SURROUNDINGS

Look at your SURROUNDINGS Folder. For each activity:

Mark 1 if you completed both the Activity Evaluation Form and the Problems to Solve.
Mark 2 if you completed the Activity Evaluation Form but didn't do Problems to Solve.
Mark 3 if you completed Problems to Solve for the activity, but not the Activity Evaluation Form.
Mark 4 if you haven't looked at the activity.
Mark 5 if you haven't had time to do it.
Mark 6 if you haven't wanted to do it.

People, People, People

Zoom In...Zoom out →
Our Changing Surroundings →
Counting Tomorrow's Crowd →
Animal Munchies →
How Well Do Others Know You? →
Electronic Surroundings →
Life on Humans →
Going to the Dogs →
Here, Kitty, Kitty →
They Prowl by Night →

Open Spaces

Can You Dig It? →
To Blend or Not To Blend? →
The Beasts in the Meadow →
Tools of Nature →
Green Scenes →
Wet Pets →
Watch the Birdie →
Moon Watch →

Integrative Activities

Zoom In... Zoom Out →
The Relationships Game →

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ACTIVITY EVALUATION FORM

Activity ____________________
Name ____________________
Teacher ____________________
Date ____________________
Class periods I spent ____________
Hours spent outside of class period ______

SURROUNDINGS

Read each statement carefully.

- Mark 1 if you strongly agree.
- Mark 2 if you agree.
- Mark 3 if you are undecided.
- Mark 4 if you disagree.
- Mark 5 if you strongly disagree.

This activity was enjoyable. →

This activity was difficult for me. →

This activity made me think. →

Read each statement carefully.

- Mark 1 if you strongly agree.
- Mark 2 if you agree.
- Mark 3 if you are undecided.
- Mark 4 if you disagree.
- Mark 5 if you strongly disagree.

This activity was important to me. →

What I learned is useful to me. →

I already knew most things in this activity. →

Complete each of the sentences below. Use as much detail as possible.

I chose this activity because ____________________

The part of the activity I enjoyed most was __________ **because** ____________________

I think the activity would be better if ____________________

From the activity, I learned ____________________

How would you describe the activity? ____________________

I would recommend (not recommend) the activity because ____________________

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SURROUNDINGS:
Self-Rating Problems

Name ______________________

Teacher ______________________

Date ______________________

(Mark only in the spaces indicated by the arrow.)

Column I. Work Habits:
Mark 1 for most of the time
Mark 2 (in between 2 and 3)
Mark 3 for about half the time
Mark 4 (in between 3 and 5)
Mark 5 for not often

I work independently—I don't need to be supervised. →

I try even if the reading is hard for me. →

I choose another activity to do when I'm waiting for long-term things to happen. →

I do my part of clean-up and management of materials. →

I do my part when I work with others on an activity. →

I start a new activity as soon as I finish one. →

I read activities carefully before I start work on them. →

I contribute to discussions about activities when I work with others. →

I try to help the group stay on the subject when we discuss activities. →

When an activity I have started gets too hard to do, I keep trying to figure it out. →

I keep working on the activity I have chosen even when there are other interesting things going on in the class. →

Column II. In Comparison to INVENTION, I have:
Mark 1 improved
Mark 2 (in between 1 and 3)
Mark 3 for about the same
Mark 4 (in between 3 and 5)
Mark 5 for not at all

I work independently—I don't need to be supervised. →

I try even if the reading is hard for me. →

I choose another activity to do when I'm waiting for long-term things to happen. →

I do my part of clean-up and management of materials. →

I do my part when I work with others on an activity. →

I start a new activity as soon as I finish one. →

I read activities carefully before I start work on them. →

I contribute to discussions about activities when I work with others. →

I try to help the group stay on the subject when we discuss activities. →

When an activity I have started gets too hard to do, I keep trying to figure it out. →

I keep working on the activity I have chosen even when there are other interesting things going on in the class. →

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SURROUNDINGS:
Self-Rating Problems

Name ____________________

Teacher ____________________

Date ____________________

(Mark only in the spaces indicated by the arrow.)

Skills Development. Mark every problem:
1 for strongly agree.
2 for agree.
3 for ?
4 for disagree.
5 for strongly disagree.

I kept animals alive and have learned how to care for them. →

I used books such as *How to Know the Insects* or *How to Know the Wild Flowers* and identified organisms successfully. →

I improved my skill in taking photographs by using photography in SURROUNDINGS activities. →

I made collections of plants or animals I had never collected before in SURROUNDINGS. →

I can use a laboratory balance to accurately weigh materials. →

I know how to measure the pH of liquids. →

I can now introduce myself to strangers to conduct interviews. →

I have successfully arranged to leave the classroom to do Human Sciences activities. →

I have successfully arranged for myself (and a friend or small group) to leave the school grounds to do a Human Sciences activity. →

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SURROUNDINGS

ZOOM IN...ZOOM OUT

01

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. Did you change an object enough so that people couldn't recognize it? ____________________

1 = yes 2 = no 3 =
4 = 5 = 6 = 7 = No Response

What did people think the object was?

NOT TO BE CODED

What was the object?

NOT TO BE CODED

2. Draw an object (1) as you would normally see it, (2) super close, and (3) very far away. Be sure to write the name of the object. Label your drawings (1), (2), and (3).

1 = normal, very far differ < 1 to 5, super close not distinctive
2 = normal, very far differ > 1 to 5, super close not distinctive
3 =
4 =
5 =
6 =
7 = No response

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SURROUNDINGS

OUR CHANGING SURROUNDINGS
02

PROBLEMS TO SOLVE

Name ______________

Teacher ______________

Date ______________

1. What did you learn from the maps about the ways your surroundings have changed?

A
1 =
2 =
3 =
4 = it has grown larger
5 =
6 = reiteration
7 = no response

What evidence from your map supports your statement?

B
1 = takes up more space/bigger area
2 =
3 =
4 = it has grown
5 =
6 = don't know
7 = no response

2. Mary dropped a sampling square on two maps of the same city. One map was made in 1940 and the other map in 1970. Look at the data below.

NUMBER OF HOUSES IN EACH SAMPLE

YEAR OF MAP	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	TOTAL	AVERAGE
1940	7	15	21	3	2	12	60	10
1970	33	48	65	22	50	64	282	47

2. What was the average number of houses in the sample in 1940? (Circle your choice.)

1. 6 2. 60 3. 1 [✓ 4.] 10

3. The difference between the average number of houses in the sample is (Circle your choice.)

1. 342
[✓ 2.] 37
3. 47
4. 222

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SURROUNDINGS

COUNTING TOMORROW'S CROWD

03

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. Will the high school in your area be big enough to hold students from all the present feeder schools five years from now? Support your answer.

   1 = enrollment #'s now and 5 yrs from now plausible
   2 = numbers not plausible

2.

GRADES / YEARS	7	8	9	10	11	12
Now	750	1000	1200	1250	1200	1100
1 year from now		750	1000	1200	1250	1200
2 years from now			750	1000	1200	1250
3 years from now				750	1000	1200
4 years from now					750	1000
5 years from now						750

How many students will be in the 10th grade three years from now?

   1 = properly completed chart and answer = 750
   2 = chart incomplete

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SURROUNDINGS

ANIMAL MUNCHIES

04

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. How did people react to the unusual foods you gave them?

A
1 = negative reaction ("yuk"/spit it out/changed color/
2 = positive reaction (liked it/
3 = positive, then negative (after telling)
4 = negative, then positive
5 =
6 =
7 = no response

Were there any differences between age groups and sexes?

B
1 = girls reacted neg more than boys
2 = boys reacted neg more than girls
3 = boys and girls the same
4 = age difference
5 = no age difference
6 = no differences
7 = no response

2. Refer to pages 104-134 of Biological Sciences: An Ecological Approach. In what group would you place a cow? Give your reasons?

A
1 = mammal
2 =
3 =
4 =
5 = fits the description
6 = don't know/not sure/
7 = no response

B
1 = 3 correct mammalian characteristics
2 = 2 correct mammalian characteristic
3 = 1 correct mammalian characteristic
4 = no correct mammalian characteristic
5 = no reason
6 = sounded like it in book/book says/
7 = no response

3. If a (1)______________ eats a (2)______________, and you eat (2)______________ does it mean you ate (1)______________?

Fill in the blanks with whatever you want to. Discuss whether the statement you have created is true or not.

NOT CODED

4. Has this activity changed your mind about food you might eat? ______ Why or why not?

A
1 = yes
2 = no
3 =
4 =
5 =
6 = blank
7 = no response

B
1 =
2 =
3 = why change?
4 = you never know what's in food
5 = I won't eat anything if I don't know what it is
6 = I wont eat X
7 = no response

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SURROUNDINGS

HOW WELL DO OTHERS KNOW YOU?

05

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Were you right in your prediction of who knew you best? _______
How did you choose the person?

1 = yes, not criteria
2 = yes, person is a friend/we hang around/we talk...
3 =
4 = no, no criteria
5 = no, person is a friend/we hand around/we talk...
6 = yes or no not indicated
7 = no response

2. Write four questions about you which could only be answered correctly by a best friend.

1 = facts (career, favorite people/things)
2 = intimacy (boy(girl)friend, talk about..., secrets, feelings about...)
3 = beliefs (about life, spiritual
4 = 1 + 2
5 = 1 + 3
6 =
7 = no response

3. Joan and Mary picked the same questions for their questionnaire. They interviewed the same people. The answers they got were different.

How would you account for this?

1 = they knew Joan (Mary) better than Mary (Joan)
2 = they are 2 different (people) personalities/not two people are alike/

3 = Jane and Mary are not best friends
4 = they are different and they run around with a different crowd
5 =
6 = don't know/don't understand
7 = no response

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ELECTRONIC SURROUNDINGS

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Who benefits by communicating on CB radio?

1 = truckers/car drivers
2 = lost people/people in trouble
3 =
4 =
5 = two or more of 1, 2, 3, 4
6 = not codeable
7 = no response

2. What are the disadvantages of communicating on CB radios?

1 = drowning out others/
2 = goofing off/
3 =
4 = it may break down
5 = your friends don't have them
6 =
7 = no response

3. Name some other parts of the electromagnetic spectrum and tell how they are important in everyday life. Use the terms "frequency" and "wave length" in your discussion.

1 = accurate discussion, both terms used correctly.
2 = accurate discussion, one term used correctly.
3 = accurate discussion, neither term used
4 = wave length "and/or frequency" incorrectly used.
5 = discussion without use of terms; off the question
6 = don't understand question
7 = no response

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SURROUNDINGS

LIFE ON HUMANS
07

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Where on the human body would you find the most organisms?

A

Why do organisms live there instead of other places on the body?

B

2. What kinds of organisms are found on the body?

A

What do these organisms do to the person they are on?

B

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SURROUNDINGS

GOING TO THE DOGS
08

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Describe the way you did your census.

2. Compare the views of dog owners and non-dog owners about the control of dogs.

3. What is the most popular breed of dog in your census territory?

   Why is that breed most popular?

4. According to your census results, what is the main reason people have dogs for pets?

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SURROUNDINGS

HERE, KITTY, KITTY

09

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. What do cats contribute to people's surroundings?

1 = kill bugs
2 = win money (show cats)
3 = companionship/hobby/good pets/entertain/pleasure
4 = aesthetic/graceful/beauty
5 =
6 = 2 or more of 1-5
7 = no response

2. What new things did you learn about cats and cat owners from your study of Cats Magazine?

1 = costly
2 = more kinds than I thought
3 = get human diseases
4 = more loving than I thought
5 = cat owners are concerned about their pets
6 = two or more of 1-5
7 = no response

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THEY PROWL BY NIGHT

10

Name ____________________

Teacher ________________

Date ____________________

1. How many different kinds of animals did you collect?

2. Where do these animals live during the daytime?

3. What do the animals you collected have in common?

4. Display any photographs you took of night prowlers and explain how you lured them.

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SURROUNDINGS

CAN YOU DIG IT?
11

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Describe the number and kinds of horizons you found in one of your soil samples.

1 = 2 or more horizons described with 1 or more characteristics
2 = 1 described
3 =
4 = 2 or more horizons found, no specific description of any horizon
5 =
6 =
7 = no response

2. Describe the differences between the places you made your soil profiles (plants, animals, uses, etc:).

A 1 = 2 or more places named and differences named and/or contrasted
2 =
3 = 2 or more places named, no differences given
4 = 1 place named with limited description
5 =
6 =
7 = no response

Compare the profiles from these places.

B 1 = 2 (at least) places compared, horizon by horizon
2 = 2 (at least) places compared, general comparison
3 =
4 =
5 = differences minimal (texture, color, particle size)
6 = didn't understand the question
7 = no response

571

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SURROUNDINGS

TO BLEND OR NOT TO BLEND?

12

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. How did you camouflage your golf ball? (with several examples, use 1st example only)

A
1 = grass and twigs/leaves/
2 = made it like an animal
3 = in a box of shredded paper
4 =
5 =
6 =
7 = no response

How long did it take others to find it?

B
1 = 1 minute or less
2 = more than 1 but less than 2 minutes
3 = more than 2 minutes, but less than 5 min
4 = more than 5 minutes
5 = they couldn't find it
6 = indeterminant (long time)
7 = no response

2. Tom says, "Most kids in our school try to look alike." Sue says, "That's not true. Kids are individuals and try to look different." With whom do you agree? (A)____________________

(B) Why?

A
1 = Tom
2 = Sue
3 = both
4 =
5 =
6 =
7 = no response

B
1 = kids dress like the popular person does
2 = kids dress alike
3 =
4 = same hair style, different clothes
5 = girls would die if someone wore the same thing
6 =
7 = no response

3. "People are like animals when it comes to camouflage." Do you agree or disagree? (A)____________________

(B) Why?

A
1 = agree
2 = disagree
3 =
4 =
5 =
6 = don't know
7 = no response

B
1 = some people like to stick out in a crowd
2 = they both try to camouflage
3 = when they want to hide, they go where they blend in
4 = animals don't wear clothes
5 = animals usually match their environment, people don't
6 = don't know/no reason
7 = no response

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SURROUNDINGS

THE BEASTS IN THE MEADOW

13

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. In what ways did you sort the animals you collected?

   1 = by means of locomotion
   2 =
   3 =
   4 =
   5 = question not answered
   6 = didn't do it
   7 = no response

2. Do you agree or disagree with this statement: "Collecting and killing fifty insects is worthwhile in order to learn more about your surroundings." ______________________________

   Give your reasons.

A 1 = agree 2 = disagree 3 = both agree & disagree 4 = 5 = 6 = no resp
7 = no response

B 1 = most have laid eggs so there'll be more
2 =
3 =
4 = it's not right/no reason/
5 = to learn how to protect them better
6 = did not
7 = no response

3. In what ways do scientists group insects?

   1 =
   2 =
   3 =
   4 =
   5 = in family categories
   6 = don't know
   7 = no response

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SURROUNDINGS

TOOLS OF NATURE
14

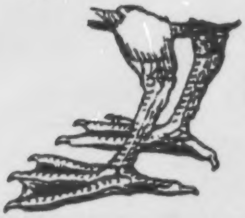
PROBLEMS TO SOLVE

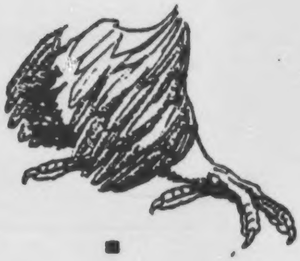
Name ____________________

Teacher ____________________

Date ____________________

1.


A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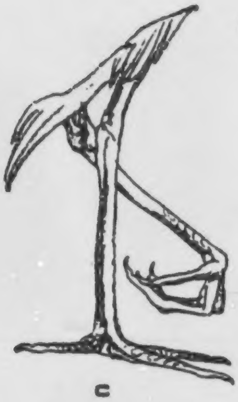
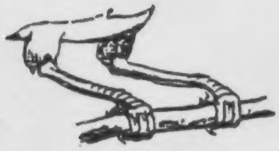

C


D

Which feet would you be most likely to find in a desert surroundings?

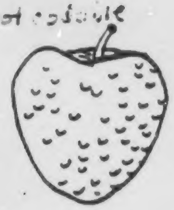
A 1 = A 2 = B 3 = C 4 = D 7 = no response

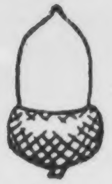
Why?

B 1 = positive, plausible reason 7 = no response
2 = exclusion (with reasons for exclusion)
3 =
4 =
5 =
6 = not codeable

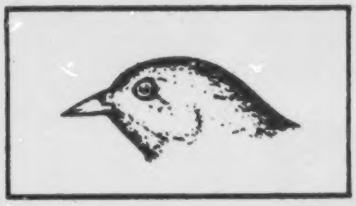
2.

OMIT - Not codeable


A


B

C



A Which seed is the bird most likely to eat? B Why?
A 1 = A 2 = B 3 = C 7 = no reason

B 1 = soft easy to eat
2 = easy to crack open
3 = only one that could be swallowed
4 =
5 = beak looks right
6 =
7 = not chosen

Which seed is the bird least likely to eat? Why?

C 1 = A, seeds are too small/its not a seed
2 = B is too hard/couldn't crack it
3 = C is
4 =
5 =
6 = can't determine
7 = no response

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SURROUNDINGS

GREEN SCENES
15

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. Display your project in the classroom, and explain to the class what you did.

1 = displayed and explained

2 =

3 =

4 =

5 = displayed, but not explained to class

6 = not done yet

7 = no response, blank, line drawn in space

2. Explain something new you have learned about plants from this activity.

1 = flower petals are used to make perfume/the scent is in the petals or leaves/

2 = how to dry flowers

3 = plant parts I didn't think would look good together do look good together/

4 = you can't just throw any kind of plant in and have a good arrangement

5 =

6 =

7 = no response

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SURROUNDINGS

WET PETS
16

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. Where in the pond or stream did you find the most animals?

A 1 = bottom
2 = bank/in sun
3 = in shallow water/edge
4 = in grass in water
5 =
6 = not codeable
7 = no response

Why do you think they lived in these surroundings?

B 1 = more food there
2 = can get out of water sometimes
3 = to hide/bury/lots of grass/gives shelter
4 =
5 =
6 = not codeable
7 = no response

2. What animal did you select for your pet?

A 1 = amphibian (toad, frog)
2 = fish (fish, trout,
3 = insect (water boatman)
4 =
5 =
6 = not codeable
7 = no response

What did you have to do to maintain it?

B 1 = specific care, correct for organism
2 = specific care, not correct for organism
3 =
4 = died
5 = general, apply to any organism
6 = not codeable
7 = no response

What did you learn about it that you didn't know before?

C 1 = specific factor, correct for organism
2 =
3 =
4 = general factor for any organism
5 = nothing
6 = not codeable
7 = no response

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SURROUNDINGS

WATCH THE BIRDIE

17

PROBLEMS TO SOLVE

Name ____________________

Teacher ________________

Date ____________________

1. What features of your feeder were most useful in attracting birds?

2. What differences did you see between males and females in birds of the same kind?

3. How did different kinds of birds behave and interact at the feeder?

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SURROUNDINGS

MOON WATCH
18

PROBLEMS TO SOLVE

Name ____________________

Teacher ____________________

Date ____________________

1. A Draw earth, moon, and sun in three different arrangements.
B Draw another picture of how the moon would appear from the
earth when in each of those positions.

A
1 = 3 drawings labeled, with 3 distinctly different arrangements correctly related
2 = 2 drawings, labeled, with 2 distinctly different arrangements correctly related
3 = 3 drawings, partly labeled, 2 distincly different arrangements correctly related
4 =
5 =
6 =
7 = no response

B
1 = 3 accurate faces of the moon clearly related to 3 drawings in A
2 = 3 different faces of the moon, not clearly related to the drawings in A
3 = 3 different faces of the moon, 1 or more not correctly related to drawings in A.
4 =
5 =
6 =
7 = no response

2. Explain how the moon appears different at different times.
1 =
2 =
3 = shadow of the earth blocks sunlight on moon, making it dark
4 =
5 =
6 =
7 = no response

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SURROUNDINGS

THE RELATIONSHIPS GAME
20

PROBLEMS TO SOLVE

Name ____________________

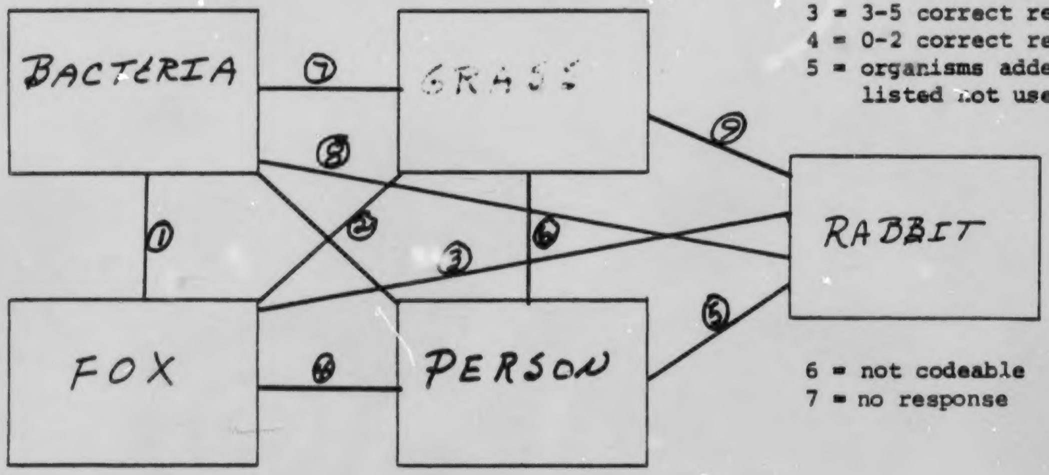
Teacher ________________

Date ____________________

1. Give an example that agrees or disagrees with this statement: "When we try to pick out anything we find it hitched to everything else."
   1 = response correctly interrelating at least 4 different elements
   2 = response correctly interrelating 2 to 3 different elements
   3 = response interrelating at least 4 different elements, with conceptual errors
   4 = response interrelating 2 to 3 different elements, with conceptual errors
   5 = reiteration
   6 = not codeable
   7 = no response

2. Show correct relationships that connect each organism to every other organism by using the arrows provided. Write the names of the organisms in the boxes. (You can use any arrow more than once and do not need to use all the arrows. You can put the arrow head on either end.)

1 = 9 correct relations
2 = 6-8 correct relations
3 = 3-5 correct relations
4 = 0-2 correct relations
5 = organisms added, those listed not used



6 = not codeable
7 = no response

Organisms

bacteria
fox
grass
person
rabbit

Arrows

becomes
breaks down
decays
depends upon
destroys

eats
lives in
pollutes
protects
uses up

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Human Sciences Program
Biological Sciences Curriculum Study
P. O. Box 930
Boulder, Colorado 80302

INSTRUCTIONS FOR ADMINISTERING "HOW IS YOUR LOGIC?"

The question booklets you are going to administer to your classes will provide the HSP with data to compare students now enrolled with data obtained in May, 1974. It is very important that every HSP student respond to these booklets. In order for the Project to obtain valid data, it is essential that all teachers administer these tests in the same way. *Please follow the instructions just as closely as possible*. If the instructions are not clear to you, please telephone us before you administer the booklets.

****

TIME AND SEQUENCE

There are two "How is Your Logic?" booklets in the set (A and B). It is anticipated that it will take approximately 30 minutes for your students to complete all of the items in one booklet. If you can allow more than 30 minutes to administer each booklet, do so since some of your students may want, or need, to take longer to complete the questions. *This is not a timed test*. Thus, the more time you can provide for individual differences, the more likely we are to get valid results. Every student should be given an opportunity to answer each question. It is necessary that the problems in one booklet be answered in one session. Do not administer a single booklet on two separate days. Plan the time of administration to avoid any interruptions. Please administer A and B within a five day period. Do not change the order of administering the booklets. Booklet A must be given on the first day.

ADMINISTRATION

1. Do not call these booklets tests. Refer to them as question booklets.
2. Arrange for students to have something to read or work on so that they do not disturb others who may still be working when they finish the booklet.
3. Read the statement on the cover page to the students. Ask them to print their full names very clearly in the space provided. Tell them to complete the information called for. Be sure that every student provides all of the information.
4. Talk slowly in a clear, firm voice. Avoid hesitation or change of tone when reading questions and responses. Since voice inflections, hesitation, etc. may alter a student's answer, this is a critical point.
5. When everyone has completed the information on the cover page, have the students turn to the examples that follow. There are three examples in booklet A. Each question and answer is separated by a blank page. Read each example slowly enough for every student to think about the question

as well as write the answer. Then have the students look at the answer. Do not explain the questions or attempt to discuss the answers, but give students time to think about them.

6. When you reach the end of the examples, tell the students that beginning with the next problem, you will read each question and that you will not explain or reword the question for them. Subsequently, if any students ask for clarification of an item, reread the item and ask them to think about it and to answer the way that THEY think is correct.
7. Read the entire question. Pause, then repeat the question. Pause and wait until all students have responded.
8. Do not go on to the next item until all or most of the students have completed the item. Some items will require more thinking time than others. Use your judgment as to the length of time necessary for all or most students to complete an item. If some students work ahead, do not stop them. It is probably best not to make a general statement to this effect. Just simply permit this to occur if it does happen.
9. At the end of the class, allow students to go back and complete any items which they did not mark the first time through.

REMEMBER: DO NOT EXPLAIN OR RE-WORD ANY OF THE QUESTIONS FOR ANY STUDENT.

OTHER

Ideally, these booklets should be administered when all of your students are present. Since this may not be possible, arrange a make-up time to have absentees respond to the booklets, following the same procedures for administration. Please return all of the booklets within 3 days after administering them. Plan to return them to HSP by, or before May 15.

If you have any questions concerning the booklets or the administration of them, please feel free to call us.

JTR/lls
HSP:4/5/76

HUMAN SCIENCES

FORM A

PLEASE PRINT:

NAME: ____________________

SCHOOL: ____________________

DATE OF BIRTH: ____________________
month/day/year

BOY: __________ GIRL: __________

DATE: ____________________

HOW IS YOUR LOGIC?

THIS BOOKLET IS PART OF THE HUMAN SCIENCES PROGRAM. YOUR ANSWERS ARE IMPORTANT ONLY TO THE HUMAN SCIENCES WRITERS. YOUR TEACHER WILL NOT USE THEM FOR ANY PURPOSE.

SOME OF THE PROBLEMS IN THIS BOOKLET ARE SIMPLE, SOME ARE MORE DIFFICULT. SOME PRESENT FACTS AND YOU HAVE TO MAKE A CONCLUSION. SOME WILL SEEM LIKE ARITHMETIC PROBLEMS, BUT YOU DON'T NEED TO DO ANY ARITHMETIC TO ANSWER THEM. OTHERS ASK YOU TO ANSWER A PROBLEM AND GIVE A REASON. THERE ARE 13 PROBLEMS, PLEASE ANSWER ALL OF THEM. YOU WILL HAVE AS MUCH TIME AS YOU NEED. YOU WILL HAVE TIME TO GO BACK TO ANY ITEMS YOU WISH AFTER YOU READ ALL THE QUESTIONS.

PLEASE COMPLETE THE INFORMATION SECTION ABOVE BEFORE BEGINNING THE BOOKLET.

EXPERIMENTAL EDITION, 1976

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conclusions, or recommendations expressed in such
a publication are those of the author(s) and do not
necessarily reflect the views of NSF.

Questions 4, 6, 8, 11 and 12 are adaptations;
questions 3, 9, 10, 13, A, B and C are original
items; and questions 2 and 7 are derived from
items constructed by William M. Gray and are used
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EXAMPLE A

ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR ED TO LIKE SUSAN?

JOHN LIKES MARY. BILL LIKES ANN, AND ED LIKES SUSAN.

JOHN LIKES MARY. BILL DOES NOT LIKE ANN, AND ED LIKES SUSAN.

JOHN DOES NOT LIKE MARY, BILL LIKES ANN, AND ED DOES NOT LIKE SUSAN.

ANSWER:

ANSWER FOR
EXAMPLE A

ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT MUST BE NECESSARY FOR ED TO LIKE SUSAN?

JOHN LIKES MARY. BILL LIKES ANN, AND ED LIKES SUSAN.
JOHN LIKES MARY. BILL DOES NOT LIKE ANN, AND ED LIKES SUSAN.
JOHN DOES NOT LIKE MARY, BILL LIKES ANN, AND ED DOES NOT LIKE SUSAN.

ANSWER: THE CORRECT ANSWER IS "JOHN LIKES MARY."

EXAMPLE B

CHUCK AND JIM ARE PLAYING A CARD GAME CALLED "BATTLE." AT THE BEGINNING OF THE GAME, CHUCK AND JIM EACH HAVE 26 CARDS. IN THE 26 CARDS THAT CHUCK HAS, THERE ARE 3 KINGS; IN THE 26 CARDS THAT JIM HAS, THERE IS ONE KING. EACH PLAYER WILL TURN OVER ONE CARD AT THE SAME TIME. WHO HAS MORE OF A CHANCE OF TURNING OVER A KING IN THE FIRST "BATTLE"?

ANSWER:

ANSWER FOR
EXAMPLE B

CHUCK AND JIM ARE PLAYING A CARD GAME CALLED "BATTLE." AT THE BEGINNING OF THE GAME, CHUCK AND JIM EACH HAVE 26 CARDS. IN THE 26 CARDS THAT CHUCK HAS, THERE ARE 3 KINGS; IN THE 26 CARDS THAT JIM HAS, THERE IS ONE KING. EACH PLAYER WILL TURN OVER ONE CARD AT THE SAME TIME. WHO HAS MORE OF A CHANCE OF TURNING OVER A KING IN THE FIRST "BATTLE"?

ANSWER: THE CORRECT ANSWER IS "CHUCK."

EXAMPLE C

DON (D), CHIP (C), BILL (B), AND PAUL (P) ARE GOING TO RIDE ON BUMPER CARS. THERE ARE ONLY TWO SEATS IN EACH CAR. EACH BOY WANTS TO RIDE WITH EACH OF THE OTHER BOYS.

WRITE ALL OF THE POSSIBLE TWO-MAN TEAMS THAT CAN BE FORMED. USE THE FIRST LETTER IN EACH BOY'S NAME IN YOUR ANSWER.

ANSWER:

ANSWER FOR
EXAMPLE C

DON (D), CHIP (C), BILL (B), AND PAUL (P) ARE GOING TO RIDE ON BUMPER CARS. THERE ARE ONLY TWO SEATS IN EACH CAR. EACH BOY WANTS TO RIDE WITH EACH OF THE OTHER BOYS.

WRITE ALL OF THE POSSIBLE TWO-MAN TEAMS THAT CAN BE FORMED. USE THE FIRST LETTER IN EACH BOY'S NAME IN YOUR ANSWER.

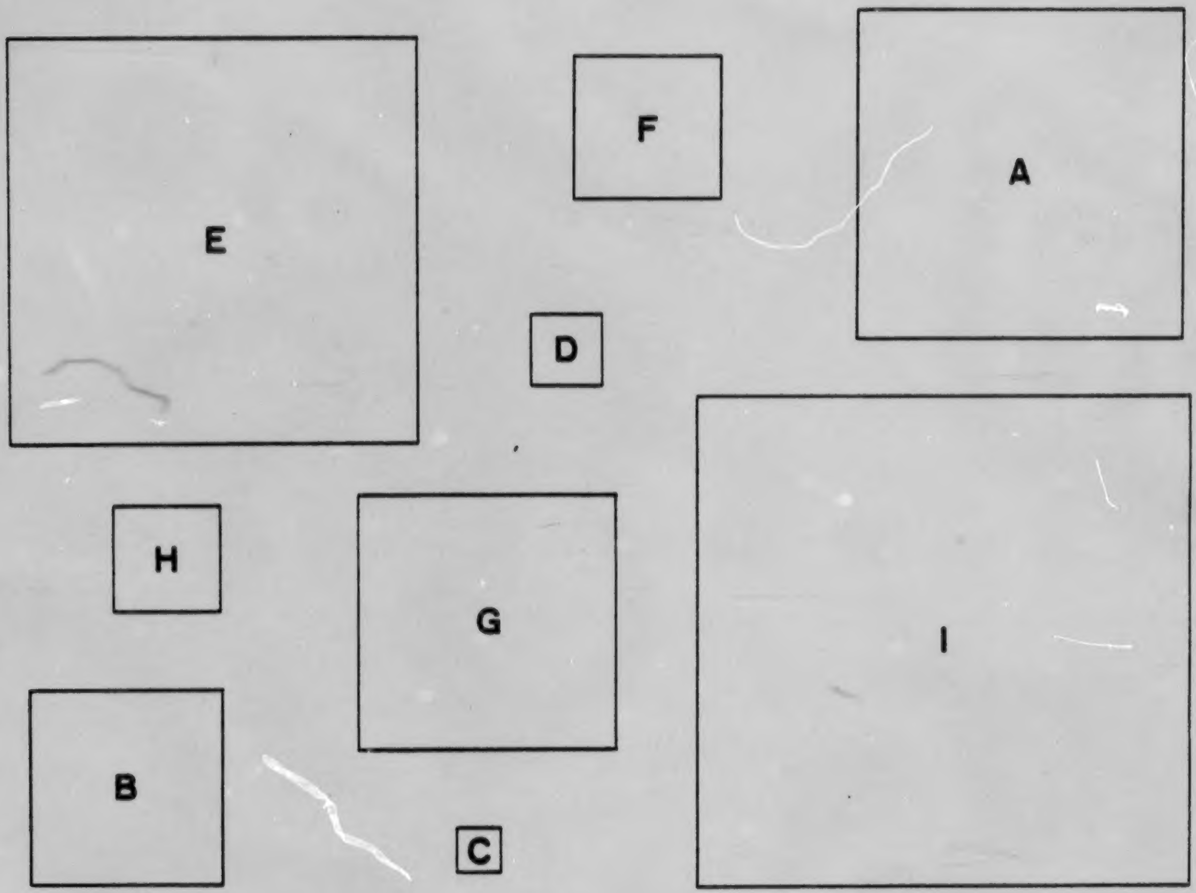
ANSWER: THERE SHOULD BE SIX TEAMS LISTED:

D C
D B
D P
C B
C P
B P

THERE IS NO TIME LIMIT ON THE QUESTIONS WHICH FOLLOW. YOUR TEACHER WILL READ THROUGH EACH QUESTION FOR YOU. AT THE END OF THE QUESTIONS, YOU WILL BE GIVEN TIME TO GO BACK TO ANY ITEM YOU MAY NOT HAVE COMPLETED THE FIRST TIME.

PLEASE ANSWER EVERY QUESTION

A.1.1976.



ON THE LINES BELOW, WRITE THE LETTERS OF THE SQAURES FROM SMALLEST TO LARGEST.

__________ (SMALLEST)

____

____

____

____

____

____

____

__________ (LARGEST)

2. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT DETERMINES WHETHER OR NOT THE MICE WILL FIGHT WITH EACH OTHER?

THE MICE ARE NOT BROWN; THE MICE ARE NOT OLD; THE MICE HAVE FOOD; THE MICE DO NOT FIGHT.

THE MICE FIGHT; THE MICE DO NOT HAVE FOOD; THE MICE ARE OLD; THE MICE ARE BROWN.

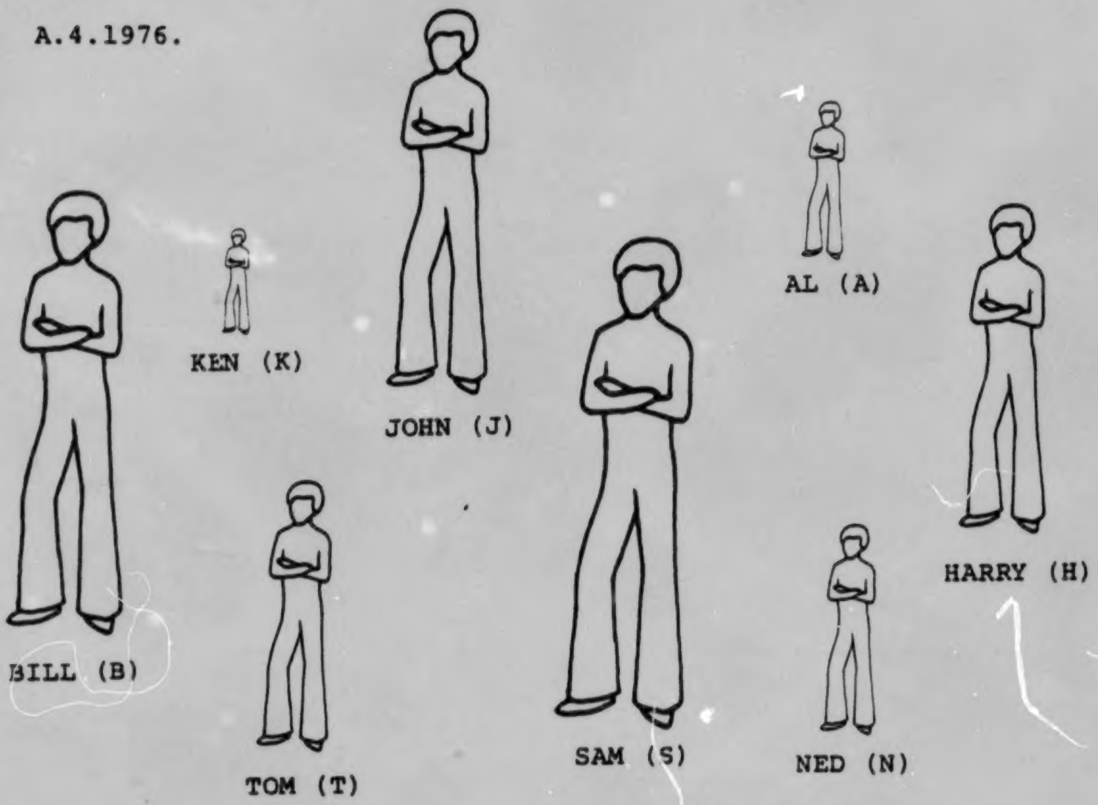
THE MICE ARE NOT OLD; THE MICE DO NOT FIGHT; THE MICE ARE BROWN; THE MICE DO NOT HAVE FOOD.

THE MICE HAVE FOOD; THE MICE ARE NOT BROWN; THE MICE FIGHT; THE MICE ARE OLD.

ANSWER:

3. EXPLAIN YOUR ANSWER:

A.4.1976.


BILL (B)
KEN (K)
JOHN (J)
TOM (T)
SAM (S)
AL (A)
NED (N)
HARRY (H)

ON THE LINES BELOW, WRITE THE FIRST LETTER OF THE BOYS' NAMES FROM THE TALLEST TO THE SHORTEST.

________ (TALLEST)

____

____

____

____

____

____

________ (SHORTEST)

5. TERESA (T), CAROL (C), PEGGY (P), AND SHARON (S), ARE GOING TO FORM TEAMS FOR A SPELLING BEE. TEAMS CAN HAVE ONE, TWO, THREE, OR FOUR MEMBERS. WRITE ALL OF THE POSSIBLE ONE, TWO, THREE, AND FOUR MEMBER TEAMS THAT CAN BE FORMED. USE THE FIRST LETTER OF EACH GIRL'S NAME IN YOUR ANSWER.

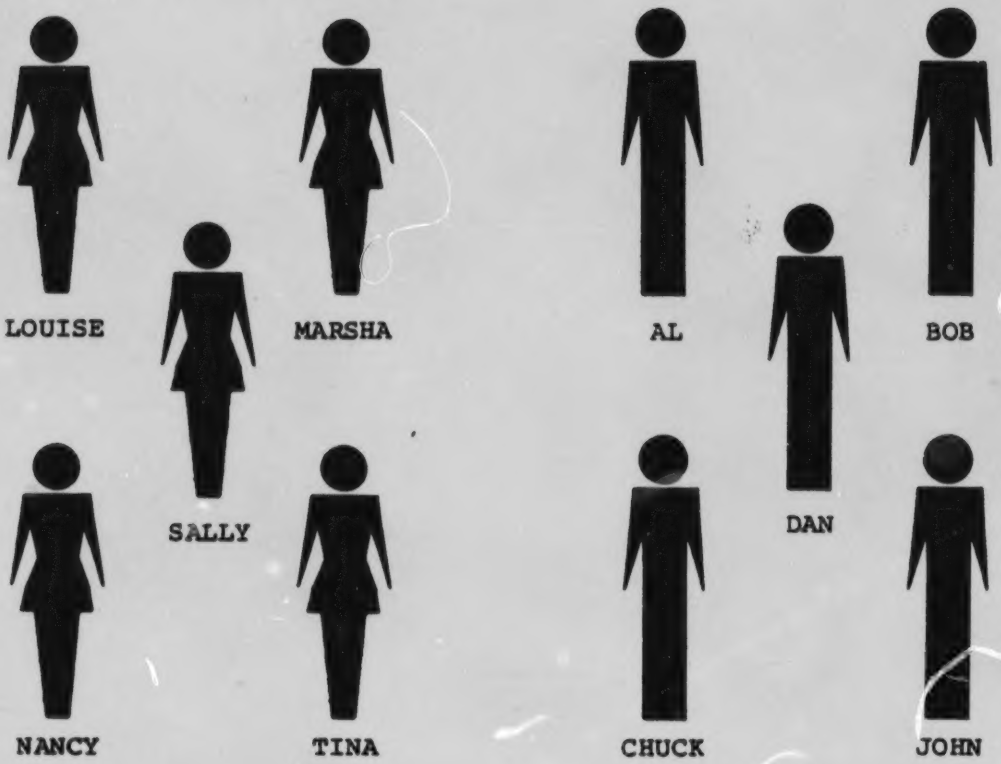
ANSWER:

6. A DOG HAS DIFFERENT COLORED PUPPIES BORN ON THE SAME DAY. THEY WERE BORN IN THE FOLLOWING ORDER: SPOTTED (S), WHITE (W), TAN (T), AND BLACK (B). THE PUPPIES COULD HAVE BEEN BORN IN ANY ORDER.

WRITE ALL OF THE POSSIBLE WAYS IN WHICH THE PUPPIES COULD HAVE BEEN BORN. USE THE FIRST LETTER OF EACH PUPPY'S COLOR IN YOUR ANSWER.

ANSWER:

A.7.1976.

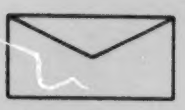

LOUISE
MARSHA
SALLY
NANCY
TINA
AL
BOB
DAN
CHUCK
JOHN

A GROUP OF FRIENDS DECIDE TO GO DANCING. THERE ARE FIVE MEN: AL (A), BOB (B), CHUCK (C), DAN (D), AND JOHN (J), AND FIVE WOMEN, LOUISE (L), MARSHA (M), NANCY (N), SALLY (S), AND TINA (T). EACH MAN WANTS TO DANCE WITH EACH WOMAN.

WRITE ALL OF THE POSSIBLE MAN-WOMAN COUPLES OF DANCERS THERE WOULD BE IF EACH MAN DANCED WITH EACH WOMAN. USE THE FIRST LETTER OF EACH PERSON'S NAME IN YOUR ANSWER.

ANSWER:

A.8.1976.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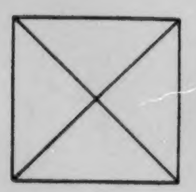
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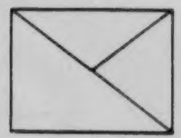
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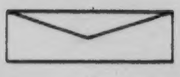
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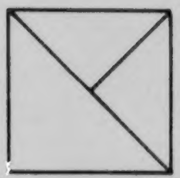
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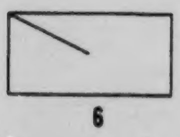
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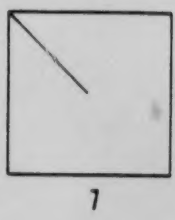
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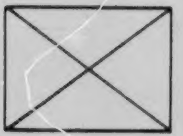
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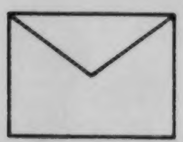
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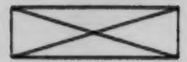
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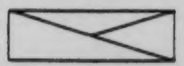
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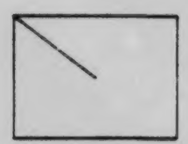
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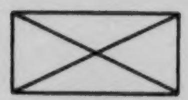
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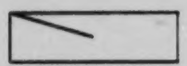
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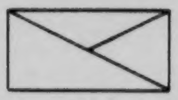
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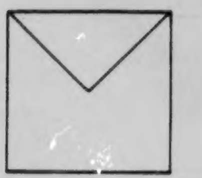

16

MAKE A PATTERN BY PLACING THE NUMBER OF EACH DRAWING IN THE BOXES BELOW. THREE PARTS OF THE PATTERN ARE ALREADY IN THE BOXES. YOU MUST COMPLETE THE PATTERN THAT HAS BEEN STARTED.

7			2
14			

9. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT DETERMINES WHETHER OR NOT THERE IS GOOD WEATHER?

CHARLIE IS NOT SWIMMING; DAVE IS BOATING; THERE IS NOT GOOD WEATHER.

THERE IS GOOD WEATHER; CHARLIE IS NOT SWIMMING; DAVE IS BOATING.

CHARLIE IS SWIMMING; THERE IS NOT GOOD WEATHER; DAVE IS NOT BOATING.

DAVE IS NOT BOATING; THERE IS GOOD WEATHER; CHARLIE IS SWIMMING.

ANSWER:

10. EXPLAIN YOUR ANSWER:

11.

BOB

DICK

JOHN

LOU

MIKE

TIM

KEN

NICK

A FOOTBALL COACH HAS SEVEN QUARTERBACKS, BOB (B), DICK (D), JOHN (J), LOU (L), KEN (K), MIKE (M), TIM (T), AND ONE WIDE RECEIVER, NICK (N). THE COACH WANTS TO FIND THE BEST QUARTERBACK-WIDE RECEIVER PAIR.

WRITE ALL THE POSSIBLE PAIRS OF QUARTERBACK AND WIDE RECEIVER IF EACH QUARTERBACK PASSED TO THE WIDE RECEIVER. USE THE FIRST LETTER OF EACH PERSON'S NAME IN YOUR ANSWER.

ANSWER:

12. JOHN AND CHIP EACH BUY A BAG OF CANDY. IN JOHN'S BAG THERE ARE 3 PIECES OF LICORICE AND 2 MINTS. IN CHIP'S BAG THERE ARE 4 PIECES OF LICORICE AND 3 MINTS.

WHO HAS THE BEST CHANCE OF GRABBING A PIECE OF LICORICE WHEN HE TAKES A PIECE OF CANDY FROM HIS BAG?

ANSWER:

13. EXPLAIN YOUR ANSWER:

IF YOU WOULD LIKE TO GO BACK AND COMPLETE ANSWERS OR CHECK YOUR WORK, YOU MAY DO SO. BE SURE YOU HAVE ANSWERED EVERY QUESTION.

Human Sciences Program
How's Your Logic?
1976 Edition

Form A

Item	Structure	Description
A1	C5	Increasing Series (drawing)
A2	FH	Make Correct Implication
A3		Explanation of Answer for A2
A4	C5	Decreasing Series (drawing)
A5	FC	Full 15 Combinations
A6	FC	Permutation of 4 Entities
A7	C3	Complete Matrix
A8	C7	Increasing Series-Decreasing Series (drawing)
A9	FH	Deny Incorrect Implication
A10		Explanation of A9
A11	C4	Many-to-One Correspondence
A12	FP	Second Stage Proportions
A13		Explanation of A12

C = Concrete Operations
F = Formal Operations

HUMAN SCIENCES

FORM B

PLEASE PRINT:

NAME: ____________________

SCHOOL: ____________________

DATE OF BIRTH: ____________________
month/day/year

BOY: ________ GIRL: ________

DATE: ____________________

HOW IS YOUR LOGIC?

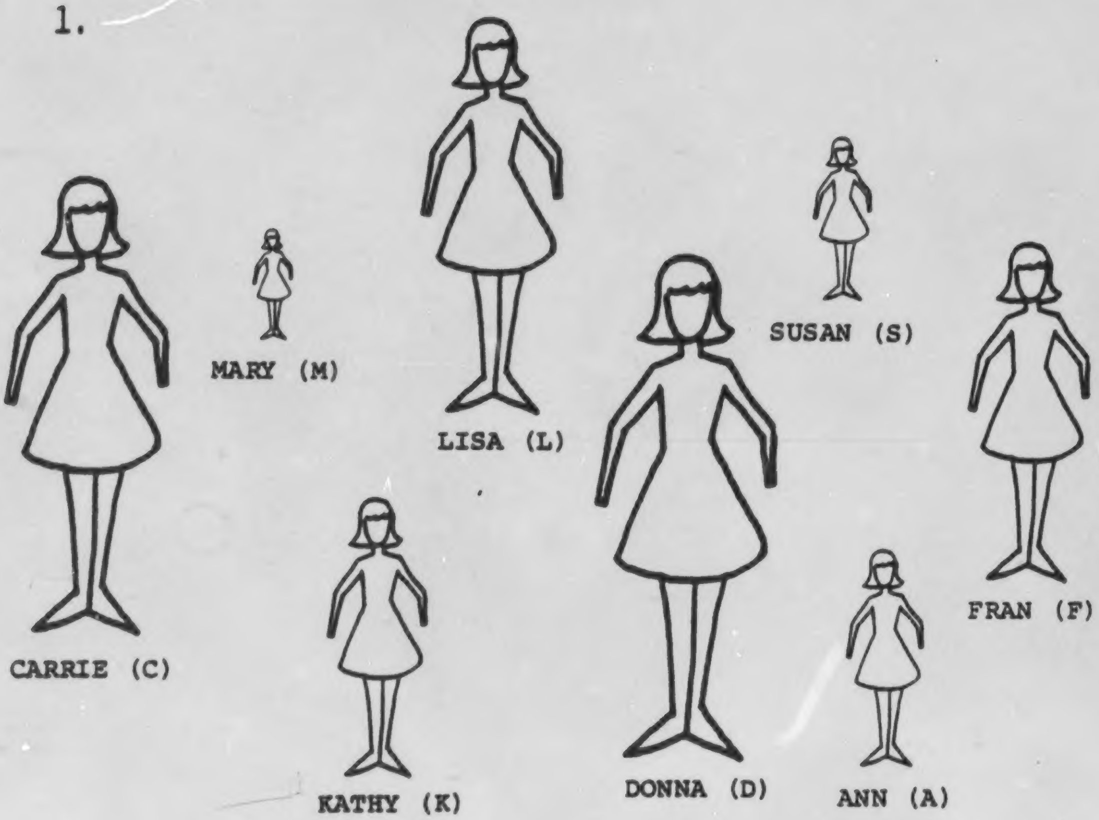
THIS BOOKLET IS PART OF THE HUMAN SCIENCES PROGRAM. YOUR ANSWERS ARE IMPORTANT ONLY TO THE HUMAN SCIENCES WRITERS. YOUR TEACHER WILL NOT USE THEM FOR ANY PURPOSE.

SOME OF THE PROBLEMS IN THIS BOOKLET ARE SIMPLE, SOME ARE MORE DIFFICULT. SOME PRESENT FACTS AND YOU HAVE TO MAKE A CONCLUSION. SOME WILL SEEM LIKE ARITHMETIC PROBLEMS, BUT YOU DON'T NEED TO DO ANY ARITHMETIC TO ANSWER THEM. OTHERS ASK YOU TO ANSWER A PROBLEM AND GIVE A REASON. THERE ARE 13 PROBLEMS, PLEASE ANSWER ALL OF THEM. YOU WILL HAVE AS MUCH TIME AS YOU NEED. YOU WILL HAVE TIME TO GO BACK TO ANY ITEMS YOU WISH AFTER YOU READ ALL THE QUESTIONS.

PLEASE COMPLETE THE INFORMATION SECTION ABOVE BEFORE BEGINNING THE BOOKLET.

EXPERIMENTAL EDITION, 1976

1.


CARRIE (C)
MARY (M)
LISA (L)
KATHY (K)
DONNA (D)
SUSAN (S)
ANN (A)
FRAN (F)

ON THE LINES BELOW, WRITE THE FIRST LETTER OF EACH GIRL'S NAME FROM THE SHORTEST TO THE TALLEST.

__________ (SHORTEST)

____

____

____

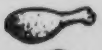
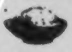
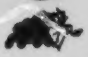
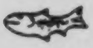
____

____

____

__________ (TALLEST)

2. THE MENU IN A CHINESE RESTAURANT HAS TWO COLUMNS LISTING THE THINGS THAT CAN BE ORDERED.

COLUMN A		COLUMN B	
CHICKEN (C)		APPLES (A)	
HAM (H)		BANANAS (B)	
RICE (R)		GRAPES (G)	
STEAK (S)		PEARS (P)	
TROUT (T)		WATERMELON (W)	

ONLY TWO ITEMS, ONE FROM COLUMN A AND ONE FROM COLUMN B, CAN BE CHOSEN AS A PAIR AT ANY ONE TIME.

WRITE ALL OF THE POSSIBLE PAIRS OF FOOD THAT COULD BE MADE IF EACH FOOD IN COLUMN A WAS CHOSEN WITH EACH FOOD IN COLUMN B. USE THE FIRST LETTER OF EACH FOOD IN YOUR ANSWER.

ANSWER:

3. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT DETERMINES WHETHER OR NOT THE SEEDS WILL GROW?

THE SEEDS DO NOT GROW; THE SEEDS ARE SMOOTH; THE SEEDS ARE NOT RED.

THE SEEDS ARE NOT SMOOTH; THE SEEDS ARE RED; THE SEEDS DO NOT GROW.

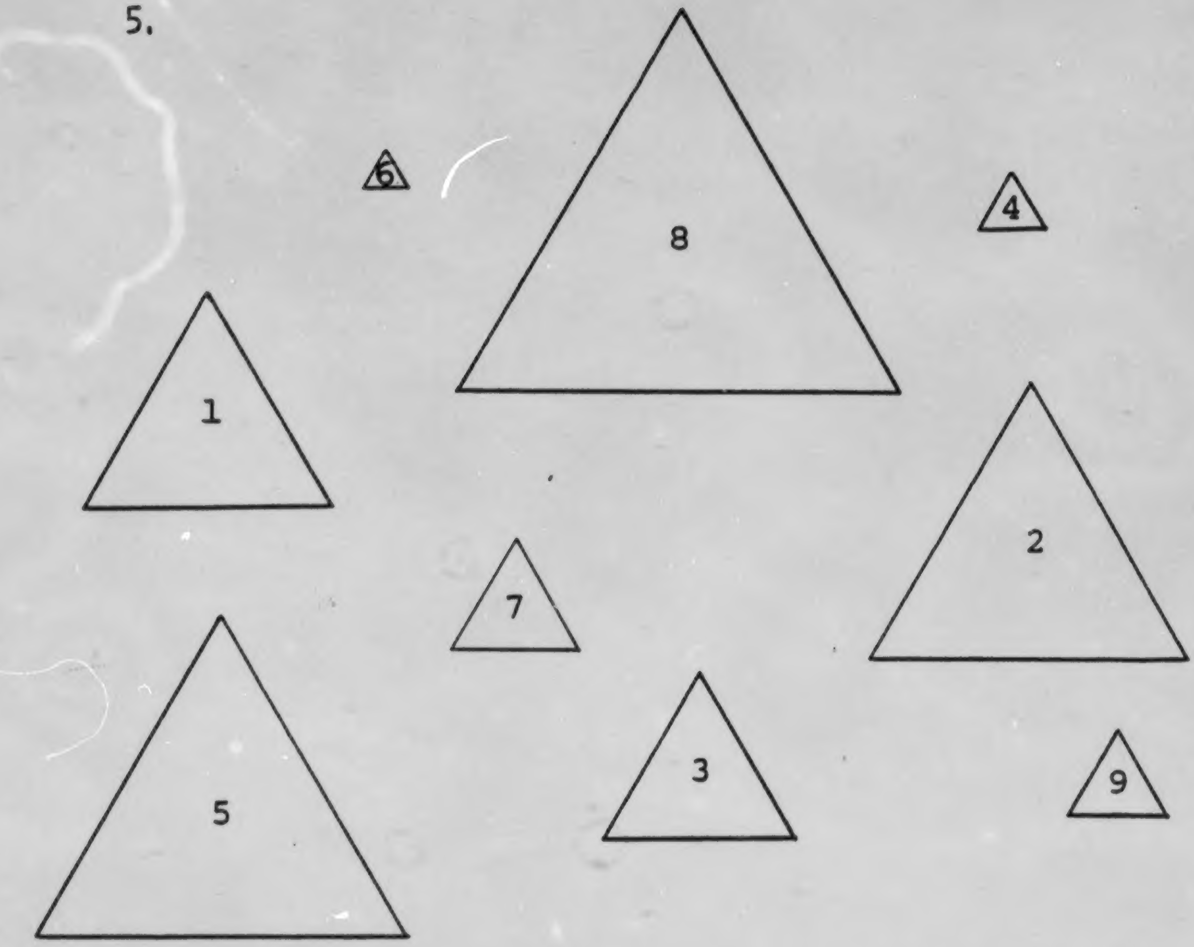
THE SEEDS ARE RED; THE SEEDS GROW; THE SEEDS ARE NOT SMOOTH.

THE SEEDS ARE SMOOTH; THE SEEDS ARE NOT RED; THE SEEDS GROW.

ANSWER:

4. EXPLAIN YOUR ANSWER:

5.



ON THE LINES BELOW, WRITE THE NUMBERS OF THE TRIANGLES FROM THE LARGEST TO THE SMALLEST.

__________ (LARGEST)

____

____

____

____

____

____

____

__________ (SMALLEST)

6. GEORGE HAS FOUR MARBLES: A RED ONE (R); A GREEN ONE (G); A BLUE ONE (B); A YELLOW ONE (Y). WRITE ALL OF THE POSSIBLE ONE, TWO, THREE AND FOUR MEMBER GROUPS OF MARBLES THAT CAN BE FORMED. USE THE FIRST LETTER OF EACH COLOR IN YOUR ANSWERS.

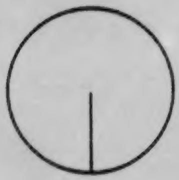
ANSWER:

7. FOUR COMPANIES--FORD (F), GOODYEAR (G), MAYTAG (M), POST (P)--ARE GOING TO HAVE OFFICES ON THE FIRST FOUR FLOORS OF A NEW BUILDING. EACH COMPANY MAY CHOOSE ANY OF THE FLOORS FOR ITS OFFICES. NO TWO COMPANIES CAN BE ON THE SAME FLOOR.

WRITE ALL OF THE POSSIBLE WAYS THAT THE COMPANIES' OFFICES COULD BE ARRANGED ON THE FLOORS. USE THE FIRST LETTER OF EACH COMPANY NAME IN YOUR ANSWER.

ANSWER:

8.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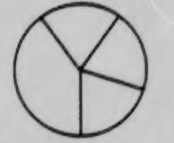
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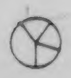
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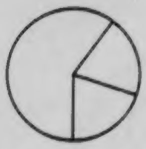
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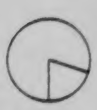
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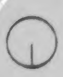
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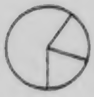
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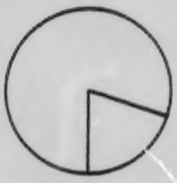
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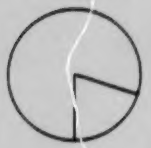
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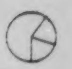
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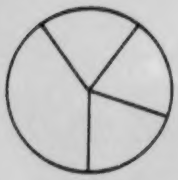
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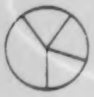
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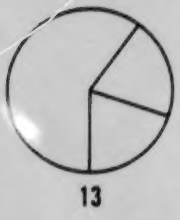
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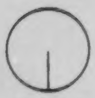
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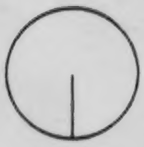
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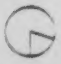

16

MAKE A PATTERN BY PLACING THE NUMBER OF EACH DRAWING IN THE BOXES BELOW. THREE PARTS OF THE PATTERN ARE ALREADY IN THE BOXES. YOU MUST COMPLETE THE PATTERN THAT HAS BEEN STARTED.

11			3
1			

9. ALL OF THE FOLLOWING SENTENCES ARE TRUE. WHAT DETERMINES WHETHER OR NOT ALVIN GOES TO THE STORE?

ALVIN GOES TO THE STORE; BILL IS NOT HERE; IT RAINS; MARY COMES HOME.

IT DOES NOT RAIN; MARY COMES HOME; ALVIN DOES NOT GO TO THE STORE; BILL IS NOT HERE.

MARY DOES NOT COME HOME; IT DOES NOT RAIN; BILL IS HERE; ALVIN DOES NOT GO TO THE STORE.

BILL IS HERE; ALVIN GOES TO THE STORE; MARY DOES NOT COME HOME; IT RAINS.

ANSWER:

10. EXPLAIN YOUR ANSWER:

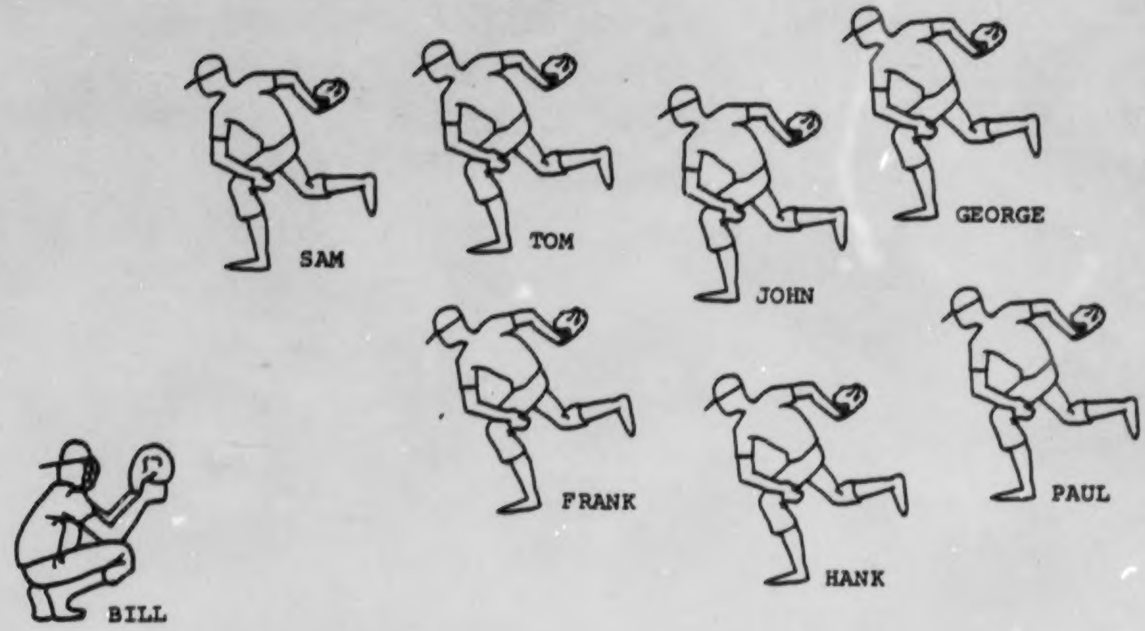
11. THERE ARE 5 RED CARS AND 2 BLUE CARS IN A GARAGE. IN A SECOND GARAGE ARE 7 RED CARS AND 3 BLUE CARS?

FROM WHICH GARAGE DOES ONE HAVE THE BEST CHANCE OF SEEING A RED CAR DRIVEN FIRST?

ANSWER:

12. EXPLAIN YOUR ANSWER:

13.



A BASEBALL MANAGER HAS SEVEN PITCHERS: SAM (S), TOM (T), FRANK (F), JOHN (J), HANK (H), GEORGE (G), PAUL (P), AND ONE CATCHER BILL (B). THE MANAGER WANTS TO FIND THE BEST PITCHER AND CATCHER PAIR.

WRITE ALL OF THE POSSIBLE PAIRS OF PITCHER AND CATCHER IF EACH PITCHER THREW TO THE CATCHER. USE THE FIRST LETTER OF EACH PERSON'S NAME IN YOUR ANSWER.

ANSWER:

IF YOU WOULD LIKE TO GO BACK AND COMPLETE ANSWERS OR CHECK YOUR WORK, YOU MAY DO SO. BE SURE YOU HAVE ANSWERED EVERY QUESTION.

Human Sciences Program
How's Your Logic?
1976 Edition

Form B

Item	Structure	Description
B1	C5	Increasing Series (drawing)
B2	C3	Complete Matrix (drawing)
B3	FH	Deny Incorrect Implication
B4		Explanation of B3
B5	C5	Decreasing Series (drawing)
B6	FC	Full 15 Combinations
B7	FC	Permutation of 4 Entities
B8	C7	Decreasing Series-Decreasing Series (drawing)
B9	FH	Make Correct Implication
B10		Explanation of B9
B11	FP	Second Stage Proportions
B12		Explanation of B11
B13	C4	Many-to-One Correspondence

C = Concrete Operations
F = Formal Operations

Science Questionnaire

The Science Questionnaire was administered to all Human Sciences Program students (experimental group) enrolled in Level III in May, 1976. It was administered at the same time to an equal number of eighth graders in each school (control group), where possible, with the same teacher. Teachers were asked to administer the Questionnaire to classes roughly comparable to their Human Sciences classes in skills and abilities.

Four conceptual dimensions were hypothesized for the instrument: evaluation (like or dislike), interest, activity (active involvement), and value (worth). The conceptual dimensions and bipolar adjectives for each dimension are shown in Table 1.

Table 1. Conceptual Structure and Bipolar Adjectives for the Science Questionnaire Semantic Differential

1. Evaluation

   good-bad
   pleasant-unpleasant
   sad-happy
   nice-awful
   fair-unfair

2. Value

   close-distant
   full-empty
   useful-useless
   important-not important
   worthless-valuable

3. Activity

   not active-active
   slow-fast
   still-moving
   tired-lively
   listening-doing

4. Interest

   interesting-boring
   dull-exciting
   never fun-always fun

Human Sciences Program

Name ______________________

Teacher ____________________

School _____________________

Date ______________________

Science Questionnaire

This questionnaire will make your thinking and opinions a part of the information of the BSCS Human Sciences Program. You are asked to participate because Human Sciences has been tested in your school. You may or may not have been in the Human Sciences course.

Please list the courses you have been taking this year, 1975-76. After you have listed all the courses, put a 1 in the right-hand column opposite the best course you have had this year. Then put a 2, for the next best course, and so on, until each course has a number. This is called "Rank-Order" from best to next-best. It does not mean you liked any course, or disliked any course. It just shows how you rate them compared to each other.

Course Title	Rank Order (1-10)

Did you have BSCS Human Sciences in 7th Grade? ____________

Did you have BSCS Human Sciences in 6th Grade? ____________

On the next page you will get a chance to express how you feel about the science course you have been in this year. You will find pairs of words and lists of numbers like:

good 3 2 1 0 1 2 3 bad

You would circle the number between good and bad that best tells how you feel. Here is an example.

Chocolate

good 3 2 1 0 1 2 3 bad

If you really love chocolate, you would circle 3, next to good. If you hate chocolate, you would circle 3, next to bad. Circling 0 would show you can take it or leave it, you don't like or dislike chocolate. Circling 1 to the left of 0 is a mild feeling toward good. Circling 1 to the right of 0 is a mild feeling toward bad. Circling 2 would indicate a moderate feeling. Circling 3 would indicate a strong feeling.

There are no correct or incorrect answers. Some pairs of words may not make as much sense as others. Don't worry, circle the number that best expresses your feelings.

Expressing Feelings

Circle the number that expresses how strongly you feel about:

Your Science Course

good	3	2	1	0	1	2	3	bad
close	3	2	1	0	1	2	3	distant
not active	3	2	1	0	1	2	3	active
full	3	2	1	0	1	2	3	empty
worthless	3	2	1	0	1	2	3	valuable
pleasant	3	2	1	0	1	2	3	unpleasant
slow	3	2	1	0	1	2	3	fast
useful	3	2	1	0	1	2	3	useless
interesting	3	2	1	0	1	2	3	boring
still	3	2	1	0	1	2	3	moving
sad	3	2	1	0	1	2	3	happy
not important	3	2	1	0	1	2	3	important
nice	3	2	1	0	1	2	3	awful
fair	3	2	1	0	1	2	3	unfair
dull	3	2	1	0	1	2	3	exciting
tired	3	2	1	0	1	2	3	lively
listening	3	2	1	0	1	2	3	doing
never fun	3	2	1	0	1	2	3	always fun

Thanks.

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Science Questionnaire: Coding Protocol

1976 Edtion

HSP Students			Non-HSP Students	
Col 1-2	1973-74 School and teacher	ID	Col 1	blank
Col 3-4	Student number		Cols 2, 3, 4	student number starting with 101
Col 5	Sex Male=1 Female=2		Col 5	Sex Male=1 Female=2
Col 6	Blank		Col 6	blank
Col 7 Col 8	1975-76 School and Teacher		Col 7	1976 school
Col 9 Col 10	1974-75 School and Teacher		Col 8	1976 HSP teacher # or 9=all non-HSP teachers
			Col 9-10	blank

Column		
11	1.	HSP 8th grade YES=1 NO=2
12	2.	HSP 7th grade YES=1 NO=2
13	3.	HSP 6th grade YES=1 NO=2
14	4.	Rank order for Science 1=1, 2=2, 3=3, 4=4, 5=5, 6=6, 7=7 to N.
15	5.	Rank order for Social Studies (same as 4)
16	6.	Rank order for Math (same as 4)
17	7.	blank
18	8.	good bad
19	9.	close distant
20	10.	not active active
21	11.	full empty
22	12.	worthless valuable
23	13.	pleasant unpleasant
24	14.	slow fast
25	15.	useful useless
26	16.	interesting boring
27	17.	still moving
28	18.	sad happy
29	19.	not important important
30	20.	nice awful
31	21.	fair unfair
32	22.	dull exciting
33	23.	tired lively
34	24.	listening doing
35	25.	never fun always fun

Coding protocol, Items 8 (Column 18) to 25 (Column 35)

Positive bipolars scored high (7) and scoring was reversed where the positive bipolar was listed first.

e.g.

not active 1 2 3 4 5 6 7 active

good 7 6 5 4 3 2 1 bad

FACILITATING SELF-EVALUATION
A
TEACHERS GUIDE TO EVALUATION ACTIVITIES
FOR
KNOWING
A MODULE OF THE BSCS
HUMAN SCIENCES PROGRAM

Experimental Edition 1977

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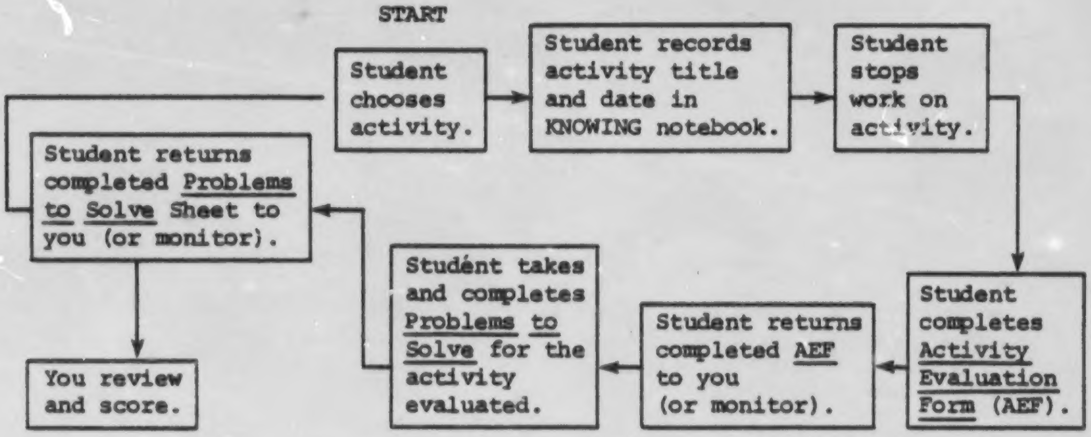
Biological Sciences Curriculum Study
P.O. Box 930, Boulder, Colorado 80306

FACILITATING SELF-EVALUATION

This flow chart gives a quick overview of evaluation procedures for KNOWING.


START
Student chooses activity.
Student records activity title and date in KNOWING notebook.
Student stops work on activity.
Student completes Activity Evaluation Form (AEF).
Student returns completed AEF to you (or monitor).
Student takes and completes Problems to Solve for the activity evaluated.
Student returns completed Problems to Solve Sheet to you (or monitor).
You review and score.

A table of evaluation materials and their use appears at the end of this paper.

The Human Sciences Program is designed to enable students to take responsibility for and develop competencies in self-evaluation. The Human Sciences Program stresses goals of facilitating growth in student

- self esteem
- interests in science
- ability to take the viewpoint of others
- social competencies
- cognitive abilities
- moral reasoning
- independence of thought
- self direction in learning
- self-evaluation

Self-evaluation will be carried out by students individually at the completion of each activity.

Student Notebooks

Each student is provided a notebook with eight dividers, one for each cluster in the KNOWING module. Each divider has descriptions of the activities within a cluster on the front side. The back side of each divider has four columns. Data sheets from activities and other papers produced by the student should be kept in the notebook by cluster. The notebook becomes a portfolio of work the student has done. It may be used by students for self-grading and/or by you in assigning grades.

A Student Guide to Self-Evaluation is provided for each student. Please go over the procedures with students before they complete their first activity. You may want to introduce evaluation by discussing the use of notebook dividers without getting into the other evaluation activities until they are needed.

1. The KNOWING notebook divider needs to have the title of the activity and the date recorded when the student begins the activity. Students may have several activities going at the same time, so overlap can be expected.
2. Two evaluation activities will be completed when each student completes or stops working on each activity chosen.
3. When students complete part or all of an activity and do not wish to do more they should get an Activity Evaluation Form for the activity, complete it and turn it in to you (or a monitor).
4. When you receive the Activity Evaluation Form you can issue a Problems to Solve Form (from the activity-specific pad) for the activity completed. Students should answer the problems independently and return the form to you.
5. Students should record the date they evaluate the activity in the space provided on the Notebook Divider. They should also answer the question, "What ways of knowing were used in the activity?" in the space on the Notebook Divider.
6. You will probably want to have a folder to hold evaluation materials for each student.

Now that you have an overview of evaluation procedures for KNOWING, the following sections provide details about each component.

Your Daily Role in Evaluation

Evaluation for KNOWING is planned to place short evaluation activities at the completion of each activity. Hopefully, this plan will require less time in large blocks.

Your initial role is to maintain the climate you have established in which each student is encouraged to initiate record keeping. Dates on the chalkboard will help students with accurate date-recording in their KNOWING Folders.

Activity Evaluation Forms (Machine Scorable). Students should have access to copies of Activity Evaluation Forms. They are to be completed upon termination of work on an activity. This, we hope, will provide a regular, steady flow of information to you. Use these forms to help diagnose student problems, to recognize growth, and to provide immediate feedback to you and from you to the student.

Make comments, assign grades, or assist the student in ways you know will facilitate growth. Please do not mark in the right-hand margin. We will use that for coding. Return these to students for feedback, but either assure they hold them without them becoming damaged, or have them stored in the folder mentioned in Item 6, page 2. Students will not need them after seeing your comments. All Activity Evaluation Forms are to be mailed to HSP at the end of the year.

Problems to Solve. A pad of Problems to Solve is provided for each activity--the problems are activity specific. Students should write their responses on the sheet and turn it into you the day they complete it. Both sides of the sheet are used for many activities. The problems are a mixture of essays, drawings, and multiple-choice problems.

Data Sheets and Other Papers. Students should keep data sheets in their notebooks. You may wish to have them turned in for checking and/or grading.

Scoring and Grading. You may wish to score each paper as a whole, or each part separately. Data from the Activity Evaluation Form, the Problems to Solve for the activity and data sheets from many activities will enable you to provide a grade for each activity, if you wish. You may wish to have students grade their work on each activity prior to, or after reading comments you have made on their papers, and prior to assigning a final grade for the activity.

Thanks for your attention to these many details. Remember that all the test items are experimental. When in doubt, ask a student to explain his or her reasons for a choice or response.

Evaluation Materials and Time of Use

TITLE	DESCRIPTION	TIMING	WHO KEEPS IT?
KNOWING Notebook	Lists activities by problem area. Asks for Date Started, Date Activity Evaluation Form Completed, what ways of knowing were used in the activity.	Daily recording by students. They may need to be reminded, and each day's date put on the board.	Held by each student. Used by student and teacher as information on progress.
Student Guide to Evaluation	A booklet explaining the student's responsibilities for evaluation in KNOWING.	Give to students on first or second day of module. Go over procedures.	Students
Activity Evaluation Form	Only one form, one copy to be completed for each activity the student is to be accountable for.	Should be available at all times. Completed by each student when the student stops work on each activity.	Student gives form to you on day of completion. You hold the form for immediate feedback.
Problems to Solve	There is one pad of Problems to Solve for each activity.	When students turn in an Activity Evaluation Form they get the Problems to Solve Sheet for that activity.	Student gives the completed Problems to Solve sheet to you for scoring. You return it to the student as you desire.

Materials to be Mailed to HSP

At the conclusion of the school year, please mail the following materials from KNOWING to the Human Sciences Project.

Machine-Scored Forms

Activity Evaluation Form. All forms completed by all students.

Non-Machine-Scored Materials

Problems to Solve. All forms completed by all students.

Notebook contents. Please send complete notebooks, but not binders, from:

a. three students who did the best work in HSP
b. three students who did average work in HSP
c. three students who did the poorest work in HSP

Teachers Guide for KNOWING. A new Guide will be sent to you upon receipt of your annotated Guide.

Thanks very much for your cooperation.

EVALUATING YOUR PROGRESS

KNOWING
A LEVEL III
HUMAN SCIENCES MODULE

Biological Science Curriculum Study
P. O. Box 930, Boulder, CO 80306

Experimental Edition, 1977
Human Sciences Program

Evaluating Your Progress

Introduction

The Human Sciences Program is trying new ways to help you learn. New ways of learning require new ways to show what you are learning. The materials and procedures described in this guide are designed to help you show others what you have done and what you have learned.

A Human Sciences module has many different kinds of activities. As you know, you choose activities to do according to your interests, skills and goals. You don't need to choose activities about things you already know well.

Since you will be doing different activities than your classmates it is necessary for you to keep accurate records of which activities you have done. You are also asked to evaluate the activity. You are asked to do this because these are new activities. They will be revised before being used. Your evaluation is needed in order to revise the activities to make them more interesting and valuable to students like you. After you evaluate the activity you will get to solve some problems to show that you learned something from the activity. (Or, maybe you already knew it!)

In Human Sciences you are more on your own than with many other science programs. This means that there are certain responsibilities you will need to accept. Freedom and responsibility go together. You can't have one without the other.

KNOWING Notebooks

You will receive a KNOWING Notebook to use as you study the KNOWING module. The KNOWING Notebook is given to you as a place to keep records of the activities you are working on. It is also a place to keep data sheets and other papers you prepare as you study different activities.

Your teacher will give you four dividers at the beginning of your study of KNOWING. Each divider is for a cluster of related activities. Descriptions of activities in the cluster are on the front side of the divider. The back side of the divider is for your records. When you have chosen an activity to work on, write the name of the activity in the first column and the date you started the activity in the second. Sometimes you will start a second activity before you finish one you are working on. This may be necessary when you have to wait for something to grow or dry or are delayed for some other reason.

Data sheets of various kinds are provided for many activities. For others you may produce written materials, drawings or other papers. Keep all your papers in your notebook. You might want to make a small section for each activity. Your notebook will become a portfolio of your accomplishments. You can use it to show your teacher, parents or friends the quality of the work you do.

You will make some things that can't be put in your notebook. Keep them so that when you and your teacher discuss your work you can show her or him everything you have done.

Activity Evaluation Forms

When you finish working on an activity you can get a copy of Activity Evaluation Form. Write your name and other information requested in the upper right-hand corner of the form. Be sure to write the title of the activity! Your ideas can't be used if you don't.

Answer all the questions on the form. Any ideas you have about the activity should be put in the "Other Comments" section.

The Activity Evaluation Form goes directly into a machine. A computer card is made from it. Please do not wrinkle the form or damage the edges. It won't go through the machine if you do. Also, please don't write in the right-hand column. Stay about 1/4 inch away from the green line. The right-hand column is used to code your answers to the questions. Thanks.

When you complete the form, record the date in the proper column on the back-side of the cluster divider. Then answer the question in the last column on the divider.

You might want to talk about the activity with others who did it. If there were ideas you didn't understand, talk over the problem with classmates or your teacher. When you are satisfied that you have learned what you wish to learn from the activity, give your teacher the Activity Evaluation Form. You are now ready to demonstrate for others what you have learned.

Problems to Solve

There is a special "Problems to Solve" pad of papers for each activity. Your teacher will give you one copy when you are ready. Be sure to check both sides of the page. Sometimes there are problems on the back.

Think of the Problems to Solve as your opportunity to show others what you can do, having worked on the activity. Follow the directions on each sheet. They may be different for different activities. The directions suggest that you use your best writing in answering essay problems. "Best writing" means to express your thoughts as completely as you can about the problem. After you have written your thoughts, read them over. Will someone else understand your thoughts from what you wrote? If not, make additions to your response.

We hope you find the Problems to Solve interesting and stimulating. Do your best work. Good Luck.

When you complete your Problems to Solve turn it in to your teacher. Now you can go to the module box and choose another activity. Try to find another activity in the same cluster as the one you completed. Choose that activity before you go to another cluster.

Module Completion

When your class completes the KNOWING module, many of your evaluation materials will be returned to the Biological Sciences Curriculum Study Human Sciences Project. We will need all of your Activity Evaluation Forms and your Problems to Solve sheets for each activity you did. In addition, we would like to have nine KNOWING notebooks from your class. Help your classmates and teacher keep all papers from KNOWING to return them to us.

What will happen to your work sent to BSCS? Members of the Human Sciences staff will read what you have written and develop coding systems that will be used to transfer your writings to computer cards. They will be put together with those of about 500 other students in our test classes. After they are processed by the computer, the staff will use the information to determine which activities need to be revised. We also hope to learn enough from your comments to have a good idea of what kind of revision the activity needs.

Thanks very much for helping us evaluate the KNOWING module. Your help will make it a better module when it becomes available for use to eighth graders all over the world.

HUMAN SCIENCES PROGRAM

Instructions for Preparing Class Lists

The attached class list sheets are to be the source from which we will identify each student individually and as a member of a class group. We will assign numbers to students, so leave the first column blank.

Please write, print or type the name of each student, last name first, in the second column. If you can do this alphabetically it will help. Check the appropriate column to designate sex. We need the birth date of each student too. The following descriptors will help you and your students make appropriate decisions concerning the "Ethnic Backgrounds" section.

--White, not of Hispanic origin, persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.

--American Indian or Alaskan Native, persons having origins in any of the original peoples of North America and who maintain cultural identification through tribal affiliation or community recognition (the latter seems to be a necessary requirement).

--Asian or Pacific Islander, persons having origins as any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the pacific Islands. The area includes, for example, China, Japan, Korea, the Philippine Islands, Samoa, India.

--Hispanic, persons having origins in Spain or the Spanish colonies, such as Mexico and most South American countries.

--Black, persons having origins in the original peoples of Southern and Central Africa.

Please check to see that the information for each student is complete and accurate. Mark each page with a class identification descriptor, such as Period 4, or Class 803.

Each kind of data on the class list is used in analyzing the test data. For example, we may want to look for sex differences, or age differences in activity choice patterns. Therefore, accuracy of each datum is critical.

Thanks.

James T. Robinson

School ____________ Teacher ____________ Teacher no. ____________

Year ____________ Module KNOWING Class ____________

Student no.	Name	Date of Birth	Sex		Ethnic Background				
			M	F	American Indian/ Alaskan Native	White, not of Hispanic Origin	Black, not of Hispanic Origin	Hispanic	Asian/ Pacific Islander

BSCS Human Sciences Program
Knowing Module

PRETESTING INSTRUCTIONS

Prestesting: Please administer these instruments to your students before you begin the KNOWING module. One-half of your students will take "How's Your Logic?" Form A and Form B. The other one-half will take the "Knowing Pretest." We are doing this to reduce testing time for students. Please establish a serious and purposeful atmosphere for this testing.

Mechanics: Be sure students have pencils. You will find a box labelled PRETEST MATERIALS. In this box you will find stacks of test booklets, "How's Your Logic?" Form A alternating with "Knowing Pretest." Distribute booklets to each student alternating a "How's Your Logic?" Form A with "Knowing Pretest," just as they are stacked in the box. Students should not get to choose the test booklet they will use. It is important that this procedure be followed.

"How's Your Logic?" has a box for the student's name, school, date of birth, boy/girl and date. This box was inadvertently left off the KNOWING Pretest. Please put a copy of the box on the chalkboard and have students reproduce it and complete it on the cover of the KNOWING Pretest.

Let students read the directions of their respective tests. Ask if there are any questions. Interpret directions but do not interpret any questions.

The Logic test has practice examples. After you have answered general questions from students, students with "How's Your Logic?" should be asked to try Example A. When they have responded, have them turn to the "Answer for Example A." They will see that for such a question they are to write the answer. Help them with the form of the problem--reading the three conditions in the three groups of statements.

Next, have students try Example B and then Example C. Resolve any problems with what students are to do. Let those who understand go ahead.

During the test period please walk around the room to constantly see how students are doing. Read items to students if they ask, but do not explain or re-word any items for a student.

Students who received "How's Your Logic?" Form A (yellow) will also need to complete Form B (orange). Do not hand out Form B (orange) if students will not have time to complete it. Save it for the next day.

Neither the "Knowing Pretest" (white) or the "How's Your Logic Test?" Form A and B are timed tests. Give students all the time they need to respond to each item.

A part of a second class period may be needed to complete the pretesting. Please plan some type of quiet independent work that students can do who finish early.

We can only use completed data. Be sure that every student who does Form A of "How's Your Logic?" does Form B. Give make-ups for absentees if you possibly can.

Disposition: Please use the same box the materials were shipped in to return them to BSCS. Please return both used and unused booklets. A return address sticker is provided in each box for readdressing to us. You will be reimbursed for postage from the shipping cost indicated on the returned package.

Note: The test booklets and administration instructions for "How Is Your Logic?" Form A and Form B, 1976 Edition are not included here as they appear in the document on pages

JTR/cjt
3/13/77

PRETEST FOR KNOWING

A LEVEL III
HUMAN SCIENCES MODULE

Biological Sciences
Curriculum Study
P.O. Box 930
Boulder, Colorado 80306

Experimental Edition, 1977
Human Sciences Program

KNOWING PRETEST

This is a special test to accompany the KNOWING module of the Human Sciences Program. Please read the instructions for each group of items carefully and then mark your responses as directed. Try to answer each question, but if you don't understand it, leave it blank.

SECTION I

Consider each statement carefully and determine if you agree with the statement or disagree with the statement. Circle the word of your choice.

A. Questions 1 through 6 relate to this story. Two students that live near some mountains had the following conversation:

Mary: I climbed to the top of my first mountain this past weekend. I don't think anyone really knows what a mountain is like until they stand on top of one.

Sue: I have never been on top of a mountain, but I think I know what it is like.

Mary: How could you?

Sue: I have seen a lot of pictures taken from the tops of mountains and the other night I saw a movie about two mountain climbers. I got scared just watching the movie!

Mary: Well that cannot compare with really being there.

Circle One

Agree Disagree 1. Mary is right. You can't know about a mountain from movies or pictures.

Agree Disagree 2. A person can know something about a mountain from a film that you could not know from being on top of one.

Agree Disagree 3. Just because Mary was on top of one mountain doesn't mean that she knows what it means to be on top of other mountains.

Agree Disagree 4. Mary and Sue are both right. They both know about mountains but in different ways.

Circle One

Agree Disagree 5. Mary and Sue could both know more about mountains if they would read a good book about mountains.

Agree Disagree 6. The only way a person can know about a mountain is by climbing one.

B. The next group of questions do not relate to the story above. Again, circle whether you agree or disagree with the statement.

Circle One

Agree Disagree 7. We have completed learning what there is to know about Mars through the Viking space expeditions.

Agree Disagree 8. Since prehistoric cultures left no written account of their activities, it is impossible to know anything about them.

Agree Disagree 9. Primitive tribes and other people without science have few useful ways of knowing.

Agree Disagree 10. Scientific knowledge is more personal than is poetry.

C. Archaeologists could use the following to find out about a particular group of prehistoric people:

Circle One

Agree Disagree 11. Locate a site where the people lived and excavate it carefully.

Agree Disagree 12. Analyze carefully the artifacts found at the site.

Agree Disagree 13. Compare the artifacts found at the site with similar ones found elsewhere.

D. If you were interested in knowing about the past which of the following would be useful?

Circle One

Agree Disagree 14. Locating fossils, reconstructing and restoring them.

Circle One

Agree Disagree 15. Using radioactive carbon dating to approximate the age of materials.

Agree Disagree 16. Translating writing systems of past culture.

Agree Disagree 17. Using stratigraphic procedures in studying formations of the earth and prehistoric settlements.

Agree Disagree 18. Using personal letters written by individuals to learn about their lives.

Agree Disagree 19. Talking with older persons to learn of their experiences.

Agree Disagree 20. Studying tools left by earlier civilizations in order to infer their use.

Agree Disagree 21. Excavating burial sites of early civilizations.

E. Read each statement. Circle the word agree or disagree to indicate how you feel about the statement.

Circle One

Agree Disagree 22. Fossils can be used as sources of information about the kinds of environments that existed millions of years ago.

Agree Disagree 23. A myth is an incorrect belief.

Agree Disagree 24. Both geologists and archaeologists assume, when they dig into layers in the earth, that the bottom layer is usually the oldest.

Agree Disagree 25. The age of the earth can be predicted by using the methods of science.

Agree Disagree 26. It takes astronomers viewing the sun from earth a full year to see the whole surface of the sun.

Agree Disagree 27. The condensation of water in nature is caused by cooling, in the laboratory it can be caused by changes in air pressure.

Circle One

Agree Disagree 28. All locations in the United States are north latitude.

Agree Disagree 29. If you had seven books that cost a total of $35.00, one book would have an average cost of $5.00.

Agree Disagree 30. Both medical doctors and medicine men (shamans) know that if their patients trust them to be of help treatment will be more effective.

Agree Disagree 31. There are chemicals that change color when another particular chemical is present or absent.

Agree Disagree 32. New developments in science are quickly accepted by scientists.

F. The Bleeps were eating their dinner under a Squalch on the planet Minos when the space craft landed with a thud in the large crater below. The leader of the Bleeps ordered an immediate silence and organized a scouting squad to go to the edge of the crater and watch the space craft. They were instructed to radio their observations back to command headquarters. This would allow an evacuation of the Maude Valley if the space craft contained Bleep enemies. The leader radioed back:

> ..."Captain the door just opened and some very small creatures have emerged. They are shiny looking and have a clear round object on their top. They have only two legs but have two other funny looking things hanging from near their top."
>
> ..."One of them just kicked some rocks with its leg and used one of those funny things hanging from near its top to move a larger rock. They move very slowly and if we had to defend ourselves we could easily move faster than they do. Since they have only two legs I think they would be easy to knock over."

Circle One

Agree Disagree 33. The leader was careful to radio observations, not inferences, back to command headquarters.

Agree Disagree 34. Such an event could occur on a different planet sometime in the future.

Circle One

Agree Disagree 35. Bleeps make inferences from observations in a different way than we do.

SECTION II

G. In Section II consider each question carefully and circle the letter of the one best answer for the question. Questions 36 and 37 refer to the "Bleeps" story.

36. Which is an inference in the story of the Bleeps above?
    - a. "Some very small creatures"
    - b. "They are shiny looking"
    - c. "They have only two legs"
    - d. "They would be easy to knock over"

37. What does the captain in the story above know about the things from the spaceship?
    - a. The creatures are going to stay.
    - b. The creatures are not like the Bleeps.
    - c. The creatures are from the other side of the planet.
    - d. The creatures are friendly.

38. The best way to learn what the students in your school think about how well the President is doing his job would be to
    - a. draw the names of 100 students from a jar containing every student's name in your school and interview them.
    - b. interview 300 students in the lunchroom.
    - c. interview all 8th grade social studies classes.
    - d. interview the first 100 boys and the first 100 girls who walked into the front door of the school on a particular day.

39. Which would be the best way to find out about the problems facing persons over age 65 in your community?
    - a. Talk to your 72-year-old neighbor.
    - b. Interview an administrator of a senior citizen volunteer program.
    - c. Read a book about aging in America.
    - d. Develop and test a questionnaire that you administer to a random sample of all persons in your community over 65.

40. After studying a unit in your science class, how would you best describe what the students in your class will know?

a. They will know the same things.

b. There will be some things most will know and other things that each student will know.

c. Every student will know different things.

d. They will know almost everything there is to know about the subject of the unit.

41. The best way to know about the amount of rainfall in your city would be to

a. read a poem about rainfall.

b. listen to a symphony related to rainfall.

c. talk to a meteorologist in your city.

d. make rain in a flask in your laboratory.

H. An astrologer and an astronomer were both asked the question, "Do you think stars influence people's personalities?"

The astronomer said, "No. They are simply masses of material in our universe that have certain known chemical and physical properties."

The astrologer said, "They have a great deal of influence. Their position at the time of our birth influences our life pattern. These patterns are very predictable."

42. What would be the best way to describe the positions of the astrologer and astronomer?

a. The astronomer is right and the astrologer is wrong.

b. The astrologer is right and the astronomer is wrong.

c. They each have their own way of knowing and there are people that would have use for each way.

d. They both have the same way of knowing but have not talked to each other enough to know it.

43. Astrology is different from astronomy because in astrology

a. the position of heavenly bodies is studied.

b. the influence of constellations on human beings is considered.

c. the major constellations of the Zodiac are studied.

d. predictions of future events about heavenly bodies are made.

44. The reason astrologers and astronomers can have such different views of the same thing is

a. they try purposefully to be different.

b. there is more than one way of knowing about something.

c. their intelligence may be very different.

d. they don't talk to each other very often.

KEY
Knowing Pretest

Columns 1-10 Identification number

Column	Item	Correct
11	1	2
12	2	1
13	3	1
14	4	1
15	5	1
16	6	2
17	7	2
18	8	2
19	9	2
20	10	2
21	11	1
22	12	1
23	13	1
24	14	1
25	15	1
26	16	1
27	17	1
28	18	1
29	19	1
30	20	1
31	21	1
32	22	1
33	23	2
34	24	1
35	25	1
36	26	2
37	27	1
38	28	1
39	29	1
40	30	1
41	31	1
42	32	2
43	33	2
44	34	1
45	35	2
↕		
52	36	4
53	37	2
54	38	1
55	39	4
56	40	2
57	41	3
58	42	3
59	43	2
60	44	2

ACTIVITY EVALUATION FORM

Activity ____________________
Name ____________________
Teacher ____________________
Date ____________________
Class periods I spent ____________
Hours spent outside of class period ______

KNOWING

Read each statement carefully.

Mark 1 if you strongly agree.
Mark 2 if you agree.
Mark 3 if you are undecided.
Mark 4 if you disagree.
Mark 5 if you strongly disagree.

This activity was enjoyable. →

This activity was difficult for me. →

This activity made me think. →

This activity was too long. →

Read each statement carefully.

Mark 1 if you strongly agree.
Mark 2 if you agree.
Mark 3 if you are undecided.
Mark 4 if you disagree.
Mark 5 if you strongly disagree.

This activity was important to me. →

What I learned is useful to me. →

I already knew most things in this activity. →

I would recommend this activity to other students. →

Complete each of the sentences below. Use as much detail as possible.

I chose this activity because ____________________

The most important thing I learned was ____________________

Other comments:

KNOWING

ACTIVITY EVALUATION FORMS

SPECIFIC CODING FOR EACH ACTIVITY

The Strange Fossil

The most important thing I learned was ______.

1 = about fossils/how things were fossilized/ how fossils were made

2 = how bones fit together/hard to put bones together/ about reconstruction

3 = how things change/evolution/other animals in the past/creatures weren't always the same

4 = patience

5 = fossil bones are rare

6 = paleontologist pieces together bones/not all fossils can be identified by paleontologists/paleontologists have different opinions

7 = no response/not codeable/unintelligible

Comments

1 = the animal was good

2 = enjoyed/fun/interesting

3 = need instructions for putting fossil together

4 = not enough detail

5 = difficult

6 = it was boring/dull/this unit needs work on

7 = no comment/not codeable

Special Coding of Activity Evaluation Form
for "WAYS OF KNOWING" (Filmstrip)
(Activity Code 62)

Column

47 I chose this activity because ______________.

1 = teacher said we had to/teacher asked...
2 = I want to learn more about it
3 = I like mountains
4 = neat to choose another kind of science program/something new
5 =
6 =
7 = blank/not codeable/unintelligible

48 The most important thing I learned was (cognitive).

1 = content (reflective): think about things you take for granted
2 = content (specific): the mountain's unknown to many people/different things about mountains/people use mountains for different things/do a lot of things
3 = process (general): how to know about things/different ways of exploring (knowing)/there are many ways to answer a question/more ways of knowing...
4 - process (interpretation): other people look at mountains in different ways/not all people think the same

Column

48 (Cont'd)

5 = process (specific): how scientists learn/methods of experimenting/to learn to check out how old a mountain is/there are more ways to know a mountain

6 = nothing/don't know/didn't know what we were doing

7 = blank/not codeable/unintelligible/no cognitive comment

49 The most important thing I learned was (aesthetic).

1 = artist (interpretive)

2 = content (specific): mountains can be pretty

3 =

4 =

5 = process (specific): to watch a beautiful film

6 =

7 = no aesthetic comment/blank/not codeable

50 Other Comments

1 = voice criticisms: voice boring/tell it was a script

2 = aesthetic: it was pretty

3 = expectancy$^{(*)}$: course looks like fun/better than reading)

4 = content criticism: too long/poetry didn't rhyme/answer sheet not clear

Column

50 (Cont'd)

5 = process (specific): ways of knowing were through...(oral learning)

6 = affective: it was boring

7 = no comment/blank/unintelligible/not codeable

CODING KNOWING
Activity Evaluation Form

I. Center Column

11 and 12 Activity Number (Assign 1 to 61 by Table of Contents)

13 Class periods I spent ________.

1 = up to 1.5
2 = 1.6 to 2.5
3 = 2.6 to 3.5
4 = 3.6 to 5.5
5 = 5.6 to 7.5
6 = 7.6 or more
7 = blank or not legible

14 Hours spent outside class period

1 = up to 1.5
2 = 1.6 to 2.5
3 = 2.6 to 3.5
4 = 3.5 or more
5 =
6 = none, 0, zero
7 = blank, not legible

III. Coding protocols.

I chose this activity because __________.

Col. 47 Attitudinal

Key words are: like, interesting, fun

1 = fun, interesting/like to know/like to study/like to learn

2 = easy to do/short

3 = enough to do/not too long or short

4 = something new/never did this before

5 = my friends wanted to do it/friend recommended it

6 = no attitudinal comment

7 = not codeable, blank

Col. 48 Cognitive

Key words are: want, want to know/learn/do

1 = want to learn (general, no specific thing mentioned)

2 = want to learn about X (one specific example)

3 = want to learn about X and Y (two or more specific examples)

4 = want to learn about X and Z (one specific and one or more general)

5 = want to learn about X and Y, and ZZ (two or more specific and one or more general items)

6 = no cognitive comment/not codeable

7 = learned nothing

Col. 49 Logistic

1 = got to leave class

2 = worked with (film, media, clay)

3 = made something, did something

4 = interviewed/surveyed

5 = worked with people

6 = no logistic comment

7 = blank, not codeable

Time Travel into the Paleozoic

The most important thing I learned was ______.

1 = different periods of time (in Grand Canyon)

2 = Grand Canyon is old/G.C. 2 billion years old/ how old the G.C. is

3 = different layers/how G.C. was formed

4 =

5 =

6 = to start cleaning up early/to follow directions/ how to mix plaster of paris

7 = no response/not codeable/unintelligible

(Note: if more than one category in student response, use smallest number)

Comments

1 = measurements should be revised

2 = inaccurate amounts of plastic

3 = hard to tell what color dyes to use/needed more dye

4 = instructions unclear

5 = interesting

6 = too long/messy

7 = no response/not codeable/unintelligible

Counting With Carbon

The most important thing I learned was ______.

1 = how stable & radioactive carbon is used to date

2 = scientists use carbon to find how long something has been dead/how old things are/how geologists find out things from the past

3 = how to figure out problems

4 = content specific: how many green bubbles were left

5 = how to count carbon

6 = nothing/boring

7 = no response/not codeable/unintelligible

Comments

1 = need info on how scientists count atoms/how process works

2 = important activity

3 = fun

4 = it was hard/confusing/couldn't figure out problems

5 =

6 = didn't learn anything/wasn't interesting

7 = no response/not codeable/unintelligible

Rosetta II

The most important thing I learned was _______.

1 = how to decode/what different shapes meant

2 = about earlier people (writing, living, judging)

3 = about designs/different people communicate in different ways/picture writing/how different other languages are from ours/many different languages

4 = that there really was a Rosetta stone/it was difficult to decode when first found

5 = to concentrate/to use logic/working with what you have/translating is hard/languages take time to learn

6 = how to write in Nomo, Wosak, Skribly/a lot of new codes/how different tribes write

7 = no response/not codeable/unintelligible/nothing

Comments

1 = fun/enjoyable/interesting

2 = codes should have been harder

3 = should be longer/should have more languages to decode

4 = should have another activity like it

5 = found mistakes in coding

6 = took too long/was hard/boring

7 = no response/not codeable/unintelligible

Where Did We Come From?

The most important thing I learned was ________.

1 = the past is important to people/everyone has a different view of how they came to be

2 = about the Arunta

3 = hard to think of a myth to tape

4 = about myths (specific)

5 = to make up silly stories/didn't learn anything

6 = reiteration: where we came from

7 = no response/not codeable/unintelligible

Comment

1 = too short and brief to learn

2 =

3 =

4 = activity was really bad/waste of time

5 =

6 =

7 = no response/not codeable/unintelligible

Patterns in Your Past

The most important thing I learned was ______.

1 = I have 4 sets of great grandparents, 8 sets of great, great grandparents (Content specific)

2 = you are kind of a mixture of all (parents, grandparents, etc.)/everybody is different

3 = my family/my relatives/my ancestors/my real.../ (General content)

4 = it isn't easy to trace your past

5 = tracing my past/made family tree

6 = nothing

7 = no comment/not codeable/unintelligible

Comments

1 = traits specified (tongue rolling, widow's peak) not interesting

2 = interesting/enjoyed it/remarkable fun!

3 =

4 = too short

5 = too boring

6 = similar to Alex Haley's Roots

7 = no comments/not codeable/unintelligible

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Pueblo People of the Past

The most important thing I learned was ________.

1 = content (general): about artifacts/people survived.../how others lived

2 = content (specific): that there is such a thing as Yellow Jacket site

3 = process: how to locate artifacts in a room associated with it/how to identify artifacts.../how to study.../how careful you have to be...

4 =

5 =

6 = nothing/boring

7 = no response/not codeable/unintelligible

Comments

1 = questions not clear/hard to understand

2 = questions 2 and 3 were confusing

3 = good/fun/interesting/enjoyed it

4 =

5 =

6 = too long/boring

7 = no response/not codeable/unintelligible

Sunwatch

The most important thing I learned was ______.

1 = sunspots are cooler than the rest of the sun

2 = about sunspots

3 = sunspots are darker but appear lighter than the rest of the sun

4 = sunspots move/sun rotates/not in the same place, day to day/movement over period of a day

5 = sunspots affect us/sun affects us

6 = general: know more about the sun

7 = no response/not codeable/unintelligible

Comments

1 = OK/not bad

2 = could be harder/make it harder

3 = did not tell me much about the sun/should tell more about sun except just sunspots

4 = useful/interesting/recommend to others

5 = hard to understand

6 = gets monotonous multiplying all period/boring/ should be able to make things

7 = no response/not codeable/unintelligible

Star Gazers

The most important thing I learned was ________.

1 = content (general): about legends/about ancient beliefs (and constellations)

2 = content (specific): similarities and differences in Leo/the many images in the stars

3 = content (interpretive): that ancient beliefs created images we see in constellations today

4 = everyone around the world sees the same stars

5 = process: how to identify stars

6 = keep up with things I use

7 = no response/not codeable/unintelligible

Comments

1 = too short

2 = useful

3 = fun/interesting

4 = not useful/dull

5 = hard/complicated

6 =

7 = no response/not codeable/unintelligible

What Do the Stars Know?

The most important thing I learned was _______.

1 = content: astronomers and astrologers are different

2 = content (interpretation): what it means when the constellation is in the sun/characteristics of people by their signs

3 = content combinations: 1 and 2

4 = content (general): about the zodiac/how the stars know

5 = process (specific): how sun signs are determined/ how to tell zodiac signs now and which will be next/ to guess sun signs

6 = attitudes: birth signs are fakey/astrologers can't really predict/stars do predict future

7 = no response/not codeable/nothing

Comments

1 = you have to ask too many people

2 = last part was boring

3 = make it harder/make it longer/add more activities

4 = fun/interesting/enjoyable

5 = too long

6 = update astrology so it will be more accurate

7 = no response/not codeable/unintelligible

The Solar Merry-Go-Round

The most important thing I learned was _______.

1 = content (general): about the longest shadows/ the shadows of the stars

2 = content (specific): telling time by the sun's shadow/the sun in relation to other stars and the earth/sun has to be in certain position to make a shadow on the earth/what causes night and day and the seasons

3 = process: how the earth turns

4 =

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = boring

2 = not bad/OK

3 = fun/good

4 = didn't teach me anything

5 = difficult

6 =

7 = no response/not codeable/unintelligible

Human Ideas About Disease

The most important thing I learned was ________.

1 = content (interpretation): to respect views of other people/just because people use different ways of healing doesn't mean they won't work/

2 = content (specific): about the Navajo's technique for curing disease/magic medicine is still relied on

3 = content (general): about different ideas (about disease) (of the tribes)/how illness was dealt with/ some weird things people do to cure disease

4 = process: how the Arunta, Navajo, Hawaiians cure their people

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = activity titles are misleading/should be more explanatory/instructions should be clearer

2 = spaces too small on Activity Evaluation form

3 = interesting

4 = didn't like it

5 = make it more exciting to read/boring

6 =

7 = no response/not codeable/unintelligible

Farther and Faster

The most important thing I learned was ________.

1 = content (interpretation): man has increased physical accomplishment over the years/as years went on time was short (er)/ man can go farther and faster/man doesn't appear to have limits in athletic abilities/there isn't a limit for everything

2 = content (specific, major): how times and heights get better

3 = content (specific, minor): times went up about .25 times each time in the Lower Slobovian turtle race

4 =

5 = content (limited): how fast a body can go/some times from the olympics/there were turtle races/ people are becoming more and more athletic/records are broken a lot

6 = skill: graphing/making (plotting) graphs/about graphs/hard to make graphs

7 = no response/not codeable/unintelligible/nothing

Comments

1 = we should make more predictions

2 = enjoyable/interesting

3 = didn't like it/didn't have anything to do with science

4 = too long

5 = need clearer instructions/could be made more interesting/kind of hard

6 = boring

7 = no response/not codeable/unintelligible

Hot Spit

The most important thing I learned was _______.

1 = content (specific): there is starch in both wet and dry crackers

2 =

3 = content (general): what happens to starchy foods when you eat them

4 = naming: how digestion is/digestion

5 =

6 = don't do it around other people

7 = no response/not codeable/unintelligible/nothing

Comment

1 = liked to do experiments

2 = didn't like activity/boring

3 = interesting/enjoyable

4 = do not like spitting or things

5 =

6 =

7 = no response/not codeable/unintelligible

Levers of the Body

The most important thing I learned was __________.

1 =

2 =

3 = content (general): what force was used to lift the jug/you can think of your arm as a machine/arms and levers are very much needed in your body

4 = process: how to measure/how joints work

5 = content (specific): about levers/what fulcrum, force, and load mean

6 = nothing

7 = no response/not codeable/unintelligible

Comment

1 = didn't like activity

2 = useful/interesting

3 = liked the activity

4 = not enjoyable

5 =

6 =

7 = no response/not codeable/unintelligible

Knowing About the Brain

The most important thing I learned was _______.

1 = content (interpretation)

2 = content (general): how the brain is constructed/ the different parts of the brain/how a brain looks/ Phineas Gage

3 = content (specific): the brain can live without almost half/how the stem sends messages to other parts of the body/you do not always die from brain damage/about the olfactory nerves

4 = attitude: the brain is weird/it was gross

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = OK

2 = activity was surprising

3 = didn't like to handle the brain/gross to some people

4 = fun/interesting

5 = not interesting

6 = should include rubber gloves

7 = no response/not codeable/unintelligible

A Way of Seeing Inside the Body

The most important thing I learned was _______.

1 = content (interpretation): X-rays have unlimited use/many things X-rays can do

2 = content (specific): names of the body's internal organs/parts of the body

3 = content (general): about the mystery X-ray/how X-rays look/X-rays are useful/about the skeleton/about the body

4 = doing: to use X-ray/how to look at X-rays and determine what is wrong with people

5 = reiteration: seeing inside the body/how things looked/what human bodies look like inside

6 = process: how to identify various parts of the body/how X-rays are made

7 = no response/not codeable/unintelligible

Comments

1 = activity boring/picture was too obvious/hard to understand

2 = X-rays good

3 = fun to do other things with X-rays

4 = too short/should be longer

5 = enjoyable/interesting/fun

6 = any two of the above (1-5)

7 = no response/not codeable/unintelligible

Building With Bricks

The most important thing I learned was ________.

1 = content (interpretation): not hard to be an architect/I am not a brick layer

2 = content (specific): an arch is stronger (holds better) than a post and lintel/not all brick patterns have the same strength

3 = content (limited): how to build (with) bricks/ mortar didn't hold/how to make mortar

4 =

5 =

6 = nothing

7 = no response/uncodeable/unintelligible

Comments

1 = too long

2 = poor mortar/cheap mortar

3 = lousy bricks/bad bricks/bricks should already be filed

4 = informative/fun

5 = didn't like it/no worksheet

6 = two or more of the above

7 = no response/not codeable/unintelligible

Foiled Again

The most important thing I learned was ________.

1 = content (interpretation): the shape determines how much weight the bridge will hold/how you build a bridge does affect its strength/can't build a bridge any old way

2 = content (specific): smooth, thinner is stronger/ arch bridges are stronger

3 = process (general): how much weight aluminum foil will hold/how to make a strong bridge.../to find out which bridges are stronger

4 = content (personal): our bridge was best/I should never make a bridge

5 = content (general): about a bridge

6 = nothing

7 = no response/not codeable/unintelligible

Comment

1 = easy

2 = not enjoyable/boring

3 = enjoyable

4 = use more materials

5 = didn't teach me much

6 = two or more of the above

7 = no response/not codeable/unintelligible

Materials in Space

The most important thing I learned was ______.

1 = interpretation: people don't express themselves the same way/how sculptures vary/how to express ideas/it isn't easy to sculpt

2 = materials: clay is fun if you put your imagination to work/there are a lot of things you can sculpture with/sculptures are not always made out of rock or clay

3 = process: how to make things with clay/clay doesn't work unless you fire it/what kind of work sculptors do

4 = content (specific): the pieta/what the pieta was

5 = content (general): about art/what a sculpture is

6 = I don't know/nothing

7 = no response/not codeable/unintelligible

Comments

1 = fun/enjoyable

2 = I learned how to make things out of clay

3 = OK/liked it

4 = it is hard and long

5 = doesn't have anything to do with science

6 = wire is too thick and hard to cut

7 = no response/not codeable/unintelligible

Building Materials: How Good Are They?

The most important thing I learned was ________.

1 = content (interpretation): you have to use tests, cost and beauty to decide which materials are best

2 = content (specific): aluminum is better than bricks/ density of building materials

3 = content (general): which material would hold up longest/some building materials are better than others

4 = process: how scientists test materials/how to measure/ how to use my hands and build stuff

5 = the use of weight/the use of mathematics

6 =

7 = no response/not codeable/unintelligible

Comments

1 = on (#'s i.e., 2, 3, 4...) you did not explore good enough

2 = fun

3 = too long

4 =

5 =

6 = suggested improvement

7 = no response/not codeable/unintelligible

Images of Brush and Pen

The most important thing I learned was _______.

1 = content (interpretation): children from all over the world are about the same/people from other countries enjoy art, too/many people write good poetry/you can be a poet or artist if you're young or old

2 = content (specific): to observe different pictures/how artists express their feelings

3 = content (general): about other people (their art and poetry)/about other countries

4 = process: how to draw and paint

5 = about looking in book more

6 = nothing/don't ever do it again

7 = no response/not codeable/unintelligible

Comments

1 = liked making the drawing

2 = interesting/good activity/liked it

3 =

4 = it was not worth it/it stinks

5 =

6 =

7 = no response/not codeable/unintelligible

How Old Are They?

The most important thing I learned was ________.

1 = content (interpretive): people age differently/ some people weren't as young as they look and some are younger than you think/people don't very often look their age/you can't tell a book by its color/

2 = content (specific): hands and faces can be used to tell people's ages/how different old and young people's characteristics are/look before you decide age/

3 = content (general): how people differ/characteristics of young and old people/about aging people's skin/ about the ages of people/different looks at different ages/

4 = process (specific): how to tell people's age by certain characteristics/how to use hands and faces to learn age/

5 = process (general): how to tell (guess) people's ages/ people have different ways to judge age/you can approximate a persons age by looking at them/

6 = I already knew it/nothing/nothing important

7 = no response/not codeable/unintelligible

Comments

1 = no answer sheet/get the answer key sheet/

2 = fun/good/neat/interesting

3 = too many questions to answer/boring

4 = didn't like it/didn't like interviewing/too long

5 = hard

6 = OK

7 = no response/not codeable/unintelligible

The Unknown Millions

The most important thing I learned was _______.

1 = content (interpretation): growing old is just part of life (There's nothing wrong with it)/ all old people are different/aging is no fun/ being old can be enjoyable, but mostly bad

2 = how old people feel/old people are capable of doing things/when you are old you slow down a lot

3 = content (general): there are as many old people/ they are almost historic/about Senoras/about middle-aged people/everyone is not the same

4 = process: how to relate to older people

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comment

1 = got to know about old age

2 = recommend to others

3 = liked it/good

4 =

5 =

6 = too long/not interesting enough

7 = no response/not codeable/unintelligible

Vital Statistics

The most important thing I learned was ______.

1 = content (interpretation): statistics are becoming larger

2 =

3 = content (general): the life expectancies in the U.S./age at death/many people born in a week/populations of countries/

4 = process: how to read population maps

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = hard

2 = boring/didn't like it

3 = wish it was longer

4 = interesting/fun

5 =

6 = suggestion for the activity

7 = no response/not codeable/unintelligible

The Very Different Ones

The most important thing I learned was ________.

1 = content (interpretation): that some people are (both) geniuses and fools/how different people really are from each other/almost anyone can be smart/people have a lot of things in common, but they don't always believe in the same things

2 = content (specific): about Wagner's theory of continental drift/Kepler was no fool/never to be an astronomist

3 = content (general): about Semmelweis (Wagner)(Kepler)/ about geniuses/about what they did/how things began and what people thought/about geniuses and fools/ biographies can be interesting (and educational)

4 = moral: not to give up if you're laughed at/no one listened to them/everyone has different goals but don't always reach them until someone finally notices/ have courage to carry out your convictions

5 = skills: how to read

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = boring/skip it

2 = enjoyable/interesting

3 = you can learn a lot by reading this

4 =

5 =

6 = 2 & 3 above

7 = no response/not codeable/unintelligible

Surveys, Samples and Schools

The most important thing I learned was _________.

1 = content (interpretation): people are very different/ have different feelings and thoughts/respect different views on things

2 = content (specific): everyone doesn't like the same thing/____was the most popular TV show/students don't like____

3 = content (general): people had a lot of different things to say/different opinions

4 = process (interpretation): watch how and what you ask because it may come out wrong/what people thought of my questions/you can't lead people on and expect to get a straight answer

5 = process (specific): how to interview/what kinds of questions to ask/not to be bashful/how to graph/how to do a survey

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = fun/enjoyed it/liked it/interesting

2 = OK

3 =

4 = it was ridiculous

5 = book was too long

6 = suggestion for the activity

7 = no response/not codeable/unintelligible

Size Wise

The most important thing I learned was _____.

1 = content (interpretation): people vary in many ways though they may be the same age/

2 = content (specific): my ring size/the ring size of different people/how big a person's finger can get/

3 = content (general): people are not the same/people are about the same/people's sizes vary/about different ring sizes/difference in sizes of rings and hats/

4 = process: how to take sizes/how to measure/see how big some people are/how to graph

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = fun/enjoyable/interesting

2 = OK/nice

3 = boring

4 = easy

5 = hard/had to go to teacher for help

6 =

7 = no response/not codeable/unintelligible

Knowing Yourself

The most important thing I learned was _____.

1 = content (interpretation): you can't have everything/ some things are more important than others/you have to put values into your decisions/many choices you have to make during your life

2 = content (specific): that I value my relatives a lot/ to be yourself/the cards I picked/there are more people of value to me than I thought

3 = content (general): things about myself/that I value a lot/about the kinds of people I like/what I want in life/things and people I value most/

4 = process: how to learn about myself/how to play different card games/how I value things & people/how to make decisions for myself

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = interesting/good

2 = hard to value one thing over another/

3 = fun/enjoyable

4 = boring

5 = everything should be more organized and easier to find/playing the card game twice for each section would be enough/too many evaluations

6 = OK

7 = no response/not codeable/unintelligible

A Martian Test

The most important thing I learned was ______.

1 = content (interpretation): even though someone is younger doesn't mean they know more or less about a certain subject/Mars has a possibility of life/ no possibility of intelligent life on Mars

2 = content (specific): most people don't know anything about Mars/how much people know/things about Mars I didn't know/adults and students have different sources of answers/how different Mars is from earth/ Mars has two moons

3 = content (general): about the terrain (mountains, etc.) of Mars/all of the things about Mars/

4 = process: questions about Mars/how to survey/how to use a tape recorder/how to interview

5 = comments: there are a lot of things to learn about Mars/interesting

6 = Mars is boring

7 = no response/not codeable/unintelligible/nothing

Comments

1 = fun/enjoyable

2 = hard to understand what to do/too many interviews/ too long

3 = good/interesting/liked it

4 = too easy/should be more interesting/make interview longer

5 = recommend it

6 = OK/all right

7 = no response/not codeable/unintelligible/nothing

Martian Tales

The most important thing I learned was _______.

1 = content (interpretation): there actually is a little fact in what the writers write about/ mostly science fiction

2 = content (specific): the different styles and imagination of different authors/how different writers tell about Mars/

3 = content (general): different ideas about Mars/about science fiction/exaggeration of tales/about UFO's

4 = process: how to use imagination and still express factual information/how to make a story/people use imagination if they want to/how people make up stories about Mars/how hard it is to record a story

5 = don't know

6 = didn't learn anything

7 = no response/not codeable/unintelligible

Comments

1 = neat

2 = fun/good/interesting

3 = liked writing the stories

4 = recommend the activity

5 = specific suggestion for the activity (Note: if this category is used write out the suggestion and file in activity folder)

6 = didn't like writing stories/did not learn much

7 = no response/not codeable/unintelligible

Four Views of Mars

The most important thing I learned was _____.

1 = content (interpretation): different information about Mars through the ages/that observations made all the difference/life could have been on Mars/ I don't know everything

2 = content (specific): looking at pictures helps find the truth/Mars is uninhabited and mostly barren/ Mars has many craters and is very rocky/Mars has water on it

3 = content (general): about Mars/more about Mars/what Mars looks like/Mars is interesting

4 = process: how to make inferences from what I have observed/how scientists found out facts about the planet/how different views of Mars affect us

5 =

6 = not sure/nothing/not interested

7 = no response/not codeable/unintelligible

Comments

1 = too long/boring

2 = didn't like it/not too useful

3 = some questions hard to understand

4 = good/liked colored picture of Mars/interesting/ enjoyable

5 = hard

6 =

7 = no response/not codeable/unintelligible

Moving Words

The most important thing I learned was _____.

1 = content (interpretation): how you write can really affect how your reader interprets what you have written/people have different ways of using motion words/anyone can make up a poem/writing a poem is hard

2 = content (specific): you can make neat poems out of words/how you can say a word to someone to make it sound important/how the other person takes it/some poems do not rhyme all the time/words can be used to show motion/arranging poems in groups

3 = content (general): some parts used in poems/about poetry/about words/there were different views

4 = process: how I can see words move/there is more to writing poetry than I imagined/how to read and understand poetry/you have to read this activity carefully/how to write a poem/how to make words look the way they sound

5 =

6 = negative comment: don't do it again/nothing

7 = no response/not codeable/unintelligible

Comments

1 = good size/not too long

2 = enjoyable/good/nice/fun/interesting

3 = got involved in the reading

4 = suggested improvement

5 = 2 or more of the above

6 = didn't like it/difficult/boring

7 = no response/not codeable/unintelligible

Dancing Motion

The most important thing I learned was ______.

1 = content (interpretation): dancing is fun

2 = content (specific): knowing hand signs

3 = content (general): reading about hula dancing/words to the dance/motions to express ideas/expressions in hula dancing/about motions different people use

4 = process: you can learn things from pictures/way dancers tell stories/how dancers use sign language to communicate/how people talk by dancing

5 = hula language was hard to understand because dancer was moving/hula dancing is not easy to do

6 =

7 = no response/not codeable/unintelligible

Comments

1 = good

2 = need more things to do/too short

3 =

4 =

5 =

6 = suggested improvement

7 = no response/not codeable/unintelligible

Vibes

The most important thing I learned was _____.

1 =

2 = content (specific): that there are things called (vibes, amplitude, frequency, period)/what amplitude was/a light weight vibrates more than a heavy one/how many times a weight bounces in a minute/

3 = content (general): about vibrating motion/things change in different ways

4 = weight does not affect a spring

5 = process: how to bounce the spring/how to measure the amplitude (others)/how long it takes to make one frequency

6 =

7 = no response/not codeable/unintelligible

Comments

1 = fun/interesting

2 = didn't like it

3 = learned something

4 =

5 =

6 =

7 = no response/not codeable/unintelligible

Rolling Along

The most important thing I learned was _________.

1 = content (interpretation): why to shift to a lower gear going down hill

2 = content (specific): learned to control the car (stop it)/the more weight the more speed/the higher the starting point, the more speed/predicting speed and distance with different weight and size of car

3 = content (general): weight and speed/how fast cars went and how far/about gravity

4 = process: it takes skill to make the car stop where you want it/dividing to get the average/how to tell the speed in seconds

5 = inconsistency: cars roll different each time

6 = affect: how to have fun with race tracks/don't do this activity/nothing

7 = no response/not codeable/unintelligible

Comment

1 = cars didn't fit on track/track wasn't too good

2 = fun

3 = too long

4 = OK

5 =

6 = negative response

7 = no response/not codeable/unintelligible

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Heavenly Motion

The most important thing I learned was ________.

1 =

2 = content (specific): how comets move/the movement of Kohoutek/stars do not move (it just seems like they do)/stars are tricky in their motion

3 = content (general): about the stars/about motion

4 = process (general): how to plot/how to tell proper and apparent motion apart

5 = process (specific): how to use a graph to find the area of a triangle/how to work with stars

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = fun/enjoyable

2 =

3 =

4 = too long

5 =

6 = pattern was hard to find/couldn't find some of the things/directions not specific enough

7 = no response/not codeable/unintelligible

Magic Motion

The most important thing I learned was ________.

1 = content (general): some tricks are easy, some hard/ hard to learn magic/all magic tricks aren't as they seem/there is a logical explanation for everything/ about moisture

2 = content (specific): moisture can curl paper/about paper (plastic) curling up in humidity/history of magic/you have to check out many important controls to figure a conclusion

3 = incorrect responses: you can curl paper with static/ how heat and air lifted the paper

4 = process (specific): how to test things and look at different possibilities/how to take pictures of the stars/how things can move with body heat

5 = process (general): how to do a trick/doing tricks/ learning magic/how magic tricks work/how to do it

6 = nothing/don't know/undecided

7 = no response/not codeable/unintelligible

Comments

1 = too short/more tricks

2 = recommend it/like it/good

3 = fun

4 = specific suggestions or problem with activity*

5 = reading hard to understand

6 = not enjoyable/boring

7 = no response/not codeable/unintelligible

(Note: If more than two categories are used in "important," use the smaller number, code that and only that response, i.e., if 1 and 3, code 1 only.)

*Make a copy of the comment and file in activity folder.

The Rainmakers

The most important thing I learned was ________.

1 = content (interpretation): you can't make a cloud without some type of particle/making rain is important to us/it isn't easy to make rain

2 = content (specific): you can make it rain/Indians made it rain by ceremonies/why rain falls/use ice to get rain

3 = content (general): about humidity/about rainmaking/about making it rain/about rain/about the weather

4 = process (general): observations help show how rain forms/experiments can tell a lot/how rain is produced/how to make rain/how clouds are made

5 = process (specific): scientific ways of making rain

6 = mechanical: you can't make it rain with the stuff we had/it doesn't work very well/equipment can be faulty

7 = no response/not codeable/unintelligible/nothing

Comments

1 = interesting/liked it/good

2 =

3 =

4 = boring

5 = hard to understand

6 = apparatus didn't work/was dangerous

7 = no response/not codeable/unintelligible

Weather Music

The most important thing I learned was ________.

1 = content (interpretation): musicians wouldn't make very good weathermen and vice versa

2 = content (specific): how composers express themselves/ songs have meaning behind them/music can express weather/the relationship between music and weather/ the kind of music weather music is/what an aesthetic expression is

3 = content (general): there is different music for different weather/things about classical music

4 = process: to listen closely/how weather can be turned into music/how to identify weather with sound/how to describe weather by music

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = the Going Further is hard to understand and do

2 = like it/enjoyable

3 =

4 = too long

5 =

6 = music key was wrong

7 = no response/not codeable/unintelligible

The Weather According to Granny Oaks

The most important thing I learned was ________.

1 = content (interpretation): some sayings can be true but most don't have a scientific basis/you can't always rely on what other people say/how people used to predict the weather by using what they have handy

2 = content (specific): sayings aren't always true/ sometimes the sayings are right/test the sayings

3 = content (general): rhymes and sayings/about people's beliefs/different ways to tell the weather/weather sayings/about weather

4 = process: how weather sayings came about/how they know what the weather is going to be

5 =

6 = nothing about it was important/don't know

7 = no response/not codeable/unintelligible

Comments

1 = fun/enjoyable

2 = specific suggestion for improvement*

3 = too long/difficult

4 = OK

5 = recommend it

6 = didn't like it/no purpose for activity

7 = no response/not codeable/unintelligible

*Note: Copy the suggestion and file in the activity folder. (Give name of student and teacher.)

Do Dew Drops Drop?

The most important thing I learned was ________.

1 = mechanical: things don't always work

2 = content (specific): how dew drops form/why fog forms/dew comes from moisture in the air/the dew point

3 = content (general): about fog/about moisture

4 = process (specific): how to make fog inside with pressure/how much to pump it (too much will make it blow up)

5 = don't know

6 = blab (and all other expletives)

7 = no response/not codeable/unintelligible

Comments

1 = fun/interesting/enjoyable

2 = didn't learn anything

3 = too long

4 = would recommend

5 = hard to understand

6 = too dangerous (it blew up)/burned by finger

7 = no response/not codeable/unintelligible

The Storm

The most important thing I learned was ________.

1 =

2 = content (specific): you should have a good warning system/Camille was the biggest hurricane in U. S. history/how unpredictable hurricanes are/symbols for wind and speed/how the hurricane moved/how much damage the hurricane did/the causes of storms

3 = content (general): how a hurricane works/about the high winds/about weather/about storms

4 = process: how to track a hurricane/how to predict a hurricane/how to read a weather map

5 =

6 = nothing

7 = no response/not codeable/unintelligible

Comments

1 = good pictures/explanation chart and weather maps helpful

2 = liked it/makes you think/good

3 =

4 = too long

5 = too short

6 = suggested improvement

7 = no response/not codeable/unintelligible

THE STRANGE FOSSIL

Knowing the Past
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. The fossil you would be least likely to find is
   a. a leg bone.
   b. a stomach.
   c. a skull.
   d. a leaf.

2. A paleontologist found pieces of a fossil skull. After piecing it together she drew a picture of what she thought the animal's head looked like. Another paleontologist agreed that the skull was pieced together properly, but he drew a different picture of what the animal's head looked like. Which statement best describes this?
   a. More differences of opinion are likely to occur during the restoration process than in the reconstruction process.
   b. Two scientists usually do not come to the same inferences from the same data.
   c. There is more room for error in reconstruction than in rectorations of a fossil.
   d. Paleontologists are not skilled in reconstructing and restoring fossil skulls so you would expect differences.

3. In reconstructing fossil bones you construct a skeleton that has two short front legs, two larger heavy hind legs and a large jaw with sharp teeth. What do these characteristics suggest that the animal was like? (What do you think it could do? What do you think it ate?)

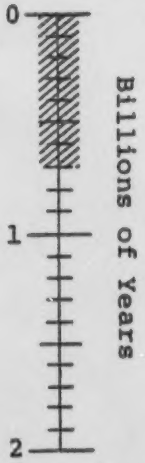
TIME TRAVEL INTO THE PALEOZOIC

Knowing the Past
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. How many years are represented by the shaded area on the geologic time line to the right?
   a. 700 billion years.
   b. 700 million years.
   c. 700 thousand years.
   d. 700 years.



2. Evidence from the Grand Canyon indicates that the earth is at least
   a. 4000 years old.
   b. 7000 years old.
   c. 100 million years old.
   d. 2 billion years old.

3. Explain the things your model of the Grand Canyon represents.

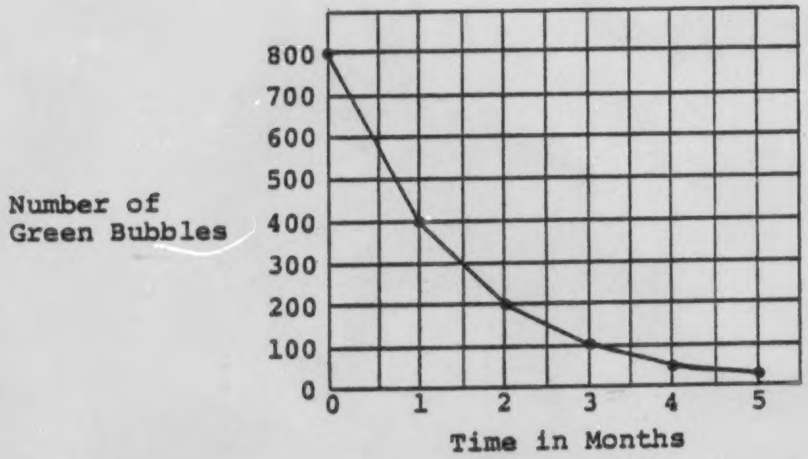
COUNTING WITH CARBON

Knowing the Past
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. What happens to the carbon in an organism after the organism dies?
   a. The carbon changes into other elements.
   b. "Radioactive" carbon is formed from "stable" carbon.
   c. Nothing happens, it stays the same.
   d. The amount of "radioactive" carbon compared to the amount of "stable" carbon changes.



2. What is the best interpretation of this graph?
   a. The bubbles are stable.
   b. The half-life of green bubbles is one month.
   c. Each month one-fourth of the bubbles are gone.
   d. The bubbles are increasing in number.

3. Why is radioactive dating a useful tool for scientists. Use two examples in your answer.

ROSETTA II

Knowing the Past
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. Ø✱✱/Ø OO))/Ø HHX

   The above message has been translated to say "We will walk." What represents an "i" in the unknown language?

   a. O
   b. Ø
   c.)
   d. OO

2. Rosetta II is like the original Rosetta stone in these ways:
   a. Both stones are important archaeological discoveries.
   b. Both stones contain a message written in several languages.
   c. Both stones have the same languages.
   d. Both stones are fictitious.

3. Choose one of the messages (Nomo, Scribly or Wosak) you decoded in the activity. What did you infer about the society? Be sure to name the group you are writing about.

WHERE DID WE COME FROM?

Knowing the Past
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. For the Arunta people, churinga are important because they
   - a. are used by women to protect their young children from evil spirits.
   - b. are effective weapons used to hunt animals.
   - c. are holy people who live below the surface of the earth.
   - d. are viewed as sacred objects given to them by their "great ancestor."

2. A myth is
   - a. a false belief to be disproven.
   - b. a tale based on scientific research.
   - c. a "way of knowing" based on tradition and authority.
   - d. a story found in past human cultures but not present ones.

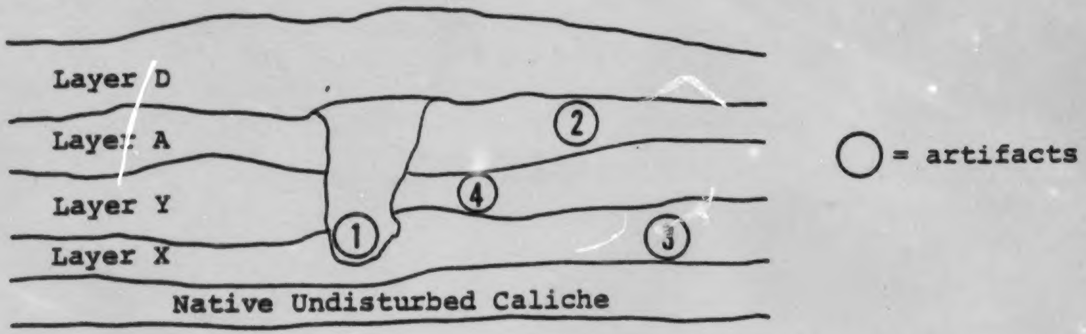
3. Compare any two of the four creation myths: Arunta, Navajo, Polynesian or Hopi. How are they alike? How are they different?

PUEBLO PEOPLE IN THE PAST

Knowing the Past
Knowing .

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.



1. What can you say about this diagram?
   a. Layer A was laid down second.
   b. Layer D was laid down first.
   c. Layer X was laid down last.
   d. Layer X was laid down first.

2. Based on the diagram above, which statement is correct?
   a. Artifact 3 is probably older than 2 .
   b. Artifacts 1 and 3 are probably about the same age.
   c. Artifact 4 is probably older than 3 .
   d. Artifact 2 is probably older than 4 .

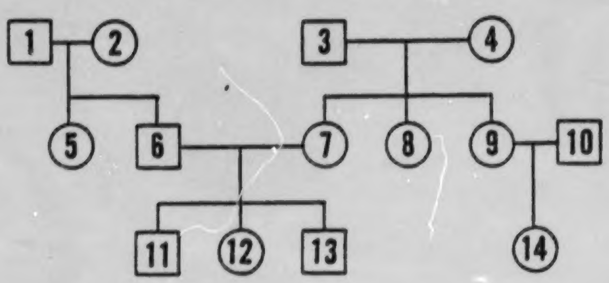
3. What time period does the Yellowjacket Site represent? Describe the way you came to that decision. What evidence did you use?

PATTERNS IN YOUR PAST

Knowing the Past
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.



1. In the family tree diagram above
   a. 12 is the son of 7.
   b. 12 is the daughter of 6.
   c. 12 is the grandson of 3.
   d. 12 is the daughter of 5.

2. In the family tree diagram above
   a. 12 and 14 are in the same generation as 3.
   b. 5 and 6 are in the same generation as 9.
   c. 2 and 3 are in the same generation as 6.
   d. 3 and 7 are in the same generation as 8.

3. Describe the most interesting pattern you found in your family tree.

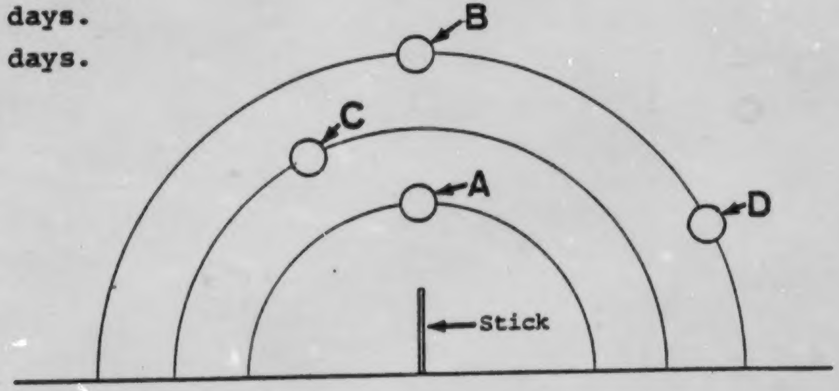
THE SOLAR MERRY-GO-ROUND

Heavens Above
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. Suppose the earth did not rotate on its axis or move around the sun. Also suppose that the sun circles the earth once every 365 days. About how long would daylight last in a given spot on the earth?
   a. About 12 hours.
   b. About 24 hours.
   c. About 365 days.
   d. About 182 days.



2. To make the longest shadow cast by the stick, place a light at point
   a. A
   b. B
   c. C
   d. D

3. What would you do if you developed two or more models that accurately represented a particular process? What would be your next step?

SUN WATCH

Heavens Above
Knowing

Problems to Solve

Name _______________

Teacher _______________

Date _______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. Sunspots
   a. stay the same from day to day.
   b. are very hot spots on the sun.
   c. influence weather on the earth.
   d. are of little use to sun scientists.

2. The observed movement of sunspots on the sun is due to
   a. the movement of the earth in its orbit.
   b. the movement of the sun in its orbit.
   c. the movement of the earth on its axis.
   d. the movement of the sun on its axis.

3. Why is the observation of sunspots so difficult? How have scientists overcome these difficulties?

THE STAR GAZERS

Heavens Above
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. On a clear night, you might see
   a. constellations rising in the east and setting in the west.
   b. the North Star moving toward the east.
   c. the 12 constellations of the Zodiac.
   d. the big dipper in the southern sky.

2. Constellations
   a. are useful because all people see the same image.
   b. are groups of stars that people have created images for.
   c. were discovered by the Viking II spacecraft.
   d. are not very predictable as to their location.

3. How were ancient beliefs about Leo similar and how were they different?

WHAT DO THE STARS KNOW?

Heavens Above
Knowing

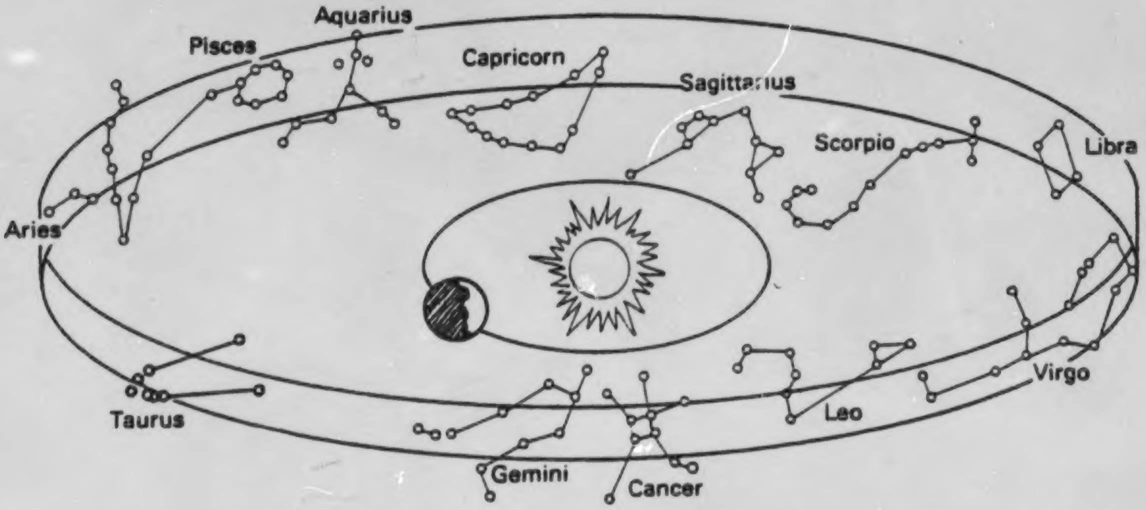
Problems to Solve

Name ______________

Teacher ______________

Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.


Aquarius
Pisces
Capricorn
Sagittarius
Scorpio
Libra
Aries
Taurus
Gemini
Cancer
Leo
Virgo

1. When the sun and earth are in the position shown in the diagram, in what constellation is the sun?
   a. Taurus.
   b. Aries.
   c. Capricorn.
   d. Libra.

2. Both astronomy and astrology
   a. are considered to be natural sciences.
   b. were used in planning US space flights.
   c. have been studied for centuries and are of interest today.
   d. are used to predict events in people's lives.

3. Nancy and John had each completed Part I of this activity, matching people's personalities with their Zodiacal sun sign. John concluded on the basis of his study that astrology is a useful way of knowing. Nancy concluded that astrology is undependable hocus pocus. How can you explain this difference in results?

HUMAN IDEAS ABOUT DISEASE

The Human Body
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. For some ailments shamans, but not medical doctors, depend upon
   a. gaining the confidence of the patient.
   b. using medicines.
   c. using heat and massage.
   d. using chants and songs.

2. Modern medicine is beginning to view disease as a condition in which the individual is out-of-balance with his or her surroundings. This view is closest to that of the
   a. Arunta.
   b. Navajo.
   c. Hawaiians.

3. Debbie was talking about "Human Ideas about Disease" to Jack. Debbie said, "I think that the medical practice of the Arunta, the Navajo and the Hawaiians is worthless." Pick one of these and explain what you would say to Debbie. What are your reasons for what you said?

FARTHER AND FASTER

The Human Body
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. First make a graph. Label the axes of your graph. Draw a "trend line" on your graph and fill in the blank in #3.

1. The following table shows the winning times for the Lower Slobovian Turtle Racing Championship from 1970 to 1976. Make a graph of the data.

Year	Winning Time
1970	12.50 hours
1971	12.00 hours
1972	12.00 hours
1973	11.25 hours
1974	11.50 hours
1975	11.25 hours
1976	11.00 hours

2. Draw a trend line on your graph.

3. From your graph, what do you predict will be the winning time in 1977? ______________

HOT SPIT

The Human Body
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. Saliva is mixed with cracker crumbs on a warm plate. The amount of starch after 30 minutes as compared to 10 minutes would be
   a. the same.
   b. more.
   c. less.
   d. not knowable.

2. Iodine-potassium iodide solution was dropped onto a substance. It turned amber or reddish-brown in color. A valid inference from this observation is
   a. starch is present.
   b. starch is absent.
   c. sugar is present.
   d. sugar is absent.

3. Judy chewed a soda cracker for several minutes, then swallowed it. What differences are there between a soda cracker in a box and the soda cracker that reached her stomach? How do you know that?

LEVERS OF THE BODY

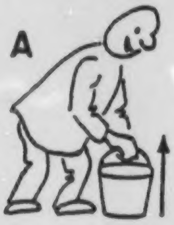
The Human Body
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

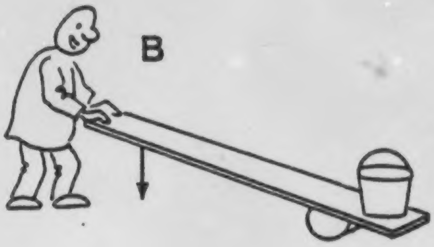
Directions: Answer all three problems. Circle the letter of the one best choice in #1. Fill in the five boxes in #2. Label your drawing, write clearly and use complete sentences in answering #3.

1. Tommy wanted to lift a 20 kg pail of cement to the height of 10 inches. Which drawing, if any, would require the least force to lift the cement?

A



B



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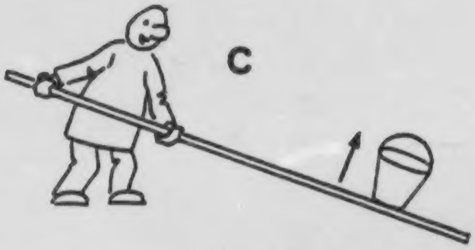
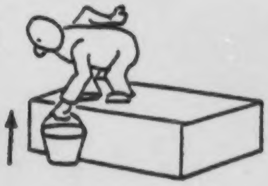


D



2. Complete the table below by writing the missing words in the blank boxes.

NAME OF JOINT	KIND OF MOTION	KIND OF JOINT
	Circular motion in all directions	
	Slipping movement	Gliding
Knee		

3. Draw your arm with a lever. Use the terms force, load and fulcrum to explain how it works.

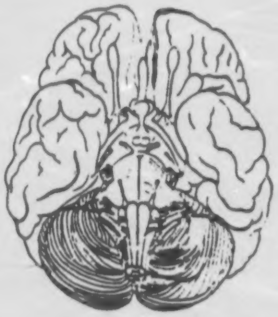
KNOWING ABOUT THE BRAIN

The Human Body
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. Which of the following ways has provided the most information about the way the human brain works?
   a. Scientists thinking about their brains.
   b. Scientists dissecting rat brains.
   c. Scientists looking at pictures of the human brain.
   d. Scientists studying brain disorders.



2. Look at the picture of a brain. The brain is shown from the
   a. top.
   b. bottom.
   c. side.
   d. front.

3. Why was the case of Phineas Gage so important in the scientific study of the brain?

A WAY OF SEEING INSIDE THE HUMAN BODY

The Human Body
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. X rays are valuable in knowing about the body because
   a. they allow us to see things not visible from outside.
   b. they are electromagnetic radiations.
   c. they are invisible to the human eye.
   d. they were discovered by a scientist named Roentgen.

2. A baby swallowed the following things. Which one would show up most clearly on an X ray?
   a. Piece of candy.
   b. Piece of wood.
   c. Coin.
   d. Milk.

3. Paul was arguing that X rays can only be used to show bones and other hard objects in the body. He said that parts like the stomach would not show up. What would you say to that? What evidence supports your point of view?

BUILDING WITH BRICKS

Materials and Shapes
Knowing

Problems to Solve

Name ______________

Teacher ______________

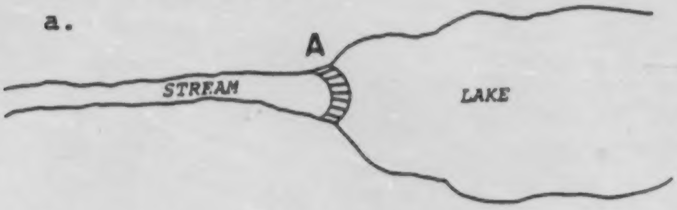
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in #3.

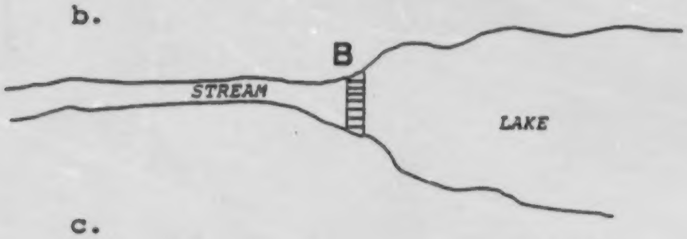
1. People who have done this activity would agree that
   a. a post-and-lintel is stronger than an arch.
   b. a post-and-lintel is more appealing than an arch.
   c. an arch is stronger than a post-and-lintel.
   d. an arch is more appealing than a post-and-lintel.

2. From your work with bricks which brick dam do you think would be the strongest?

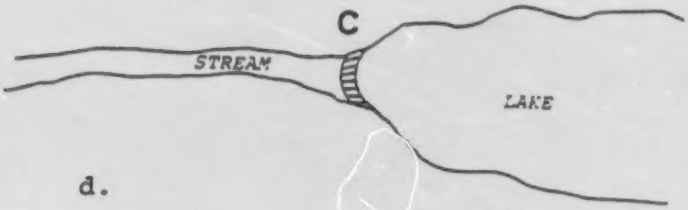
a.



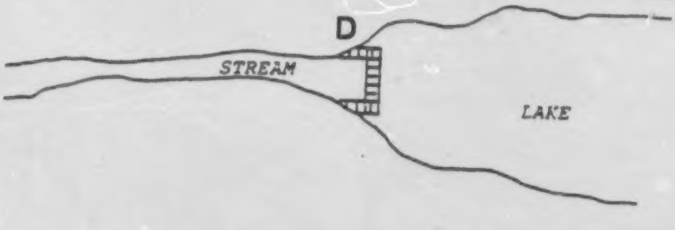
b.



c.



d.



3. A friend tells you that all brick columns have the same strength and that it makes no difference how the bricks are arranged. What would you say to the person? Describe at least one experiment you would do to prove it to your friend.

FOILED AGAIN

Materials and Shapes
Knowing

Problems to Solve
Name ________________
Teacher ________________
Date ________________

Directions: Answer all three problems. Circle the letter of the one best choice in #1. Write clearly and use complete sentences in answering #2. Make clear labeled drawings in #3.

1. If four bridges can all hold the same weight, which one is made from the strongest material? (Assume that all the bridges have the same shape.)
   - a. A bridge weighing 2.5 metric tons.
   - b. A bridge weighing 2.0 metric tons.
   - c. A bridge weighing 3.0 metric tons.
   - d. A bridge weighing 4.0 metric tons.

2. When conducting your experiment to see who could build the strongest bridge why was it important to have the wooden blocks exactly 15 cm apart each time?

3. Draw pictures of the strongest bridge made in your class. Show as many views as you need so that a bridge could be made from your drawings. Use the back side, if needed.

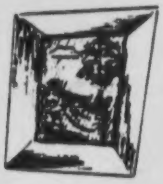
MATERIALS IN SPACE

Materials and Shapes
Knowing

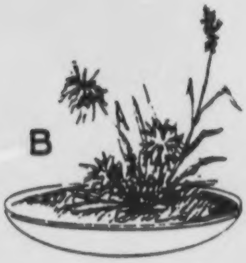
Problems to Solve
Name ________________
Teacher ________________
Date ________________

Directions: Answer all three problems. Circle the letter of the one best choice in #1. Draw carefully and use your best writing to answer #2 and #3.

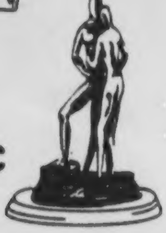
A



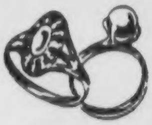
B



C



D



1. Which of the above illustrates a sculpture?
   - a. A
   - b. B
   - c. C
   - d. D

2. Draw a picture of the sculpture you made. What did you like about the material you used to make your sculpture? Explain what it means to you.

3. Describe your favorite sculpture photograph. Explain why it was your favorite.

BUILDING MATERIALS: HOW GOOD ARE THEY?

Materials and Shapes
Knowing

Problems to Solve

Name ________________

Teacher ________________

Date ________________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in #3.

1. If you have a block of aluminum and a brick, each one kilogram, which of the following is true?
   a. They must both be the same size.
   b. They both have the same mass.
   c. They are both less dense than water.
   d. They both have the same shape.

2. Which of the following involves the most money?
   a. 850 sq. feet of brick at $3.11 per square foot.
   b. 900 sq. feet of aluminum at $2.25 per square foot.
   c. 650 sq. feet of wood at $4.95 per square foot.
   d. 300 sq. feet of fiberglass at $4.15 per square foot.

3. In selecting a building material what information would you want and how would you make your final selection? Use the back side, if needed.

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IMAGES OF BRUSH AND PEN

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer both problems. Circle the letter of the one best choice in #1. Write clearly, use complete sentences and be sure to answer all questions in answering #2.

1. Jane and Judy were walking home from school. Jane said to Judy, "Look at that boy over by the drugstore. He has a rock in his hand." Judy said, "He's going to throw that rock through a window." Judy's statement represents
   a. an observation and an inference.
   b. an inference.
   c. the cause of broken windows.
   d. an observation.

2. What writing or piece of artwork did you like best? Why? What did you learn about the artist or writer who created your favorite selection?

HOW OLD ARE THEY?

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer both questions. Circle the letter of the one best choice in #1. Write clearly, use complete sentences and be sure to answer all questions in answering #2.

1. Which of the following characteristics of hands is not likely to help you judge a person's age?
   a. Size.
   b. Smoothness or wrinkledness of skin.
   c. Cleanliness.
   d. Shape.

2. If you had a job guessing ages in a carnival, what characteristics would you use to guess a person's age? Which one characteristic do you think would be most useful? Why?

THE UNKNOWN MILLIONS

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. Older people in the United States
   a. are shown great respect.
   b. live mostly in old folks' homes.
   c. are better off financially than working people.
   d. are just as different as young people.

2. What is least important to Senor Gallegos at his present stage of life?
   a. Being fair to his customer.
   b. Making as much money as possible.
   c. Having a good reputation when he dies.
   d. Being a good husband and father.

3. Jim and Pete were talking after school. Pete said, "My grandmother from California is going to come and live with us. I don't know her very well, but I'm not looking forward to her coming. All old people are alike: sick and crabby." Jim had just completed "The Unknown Millions" activity. What could he say to Pete?

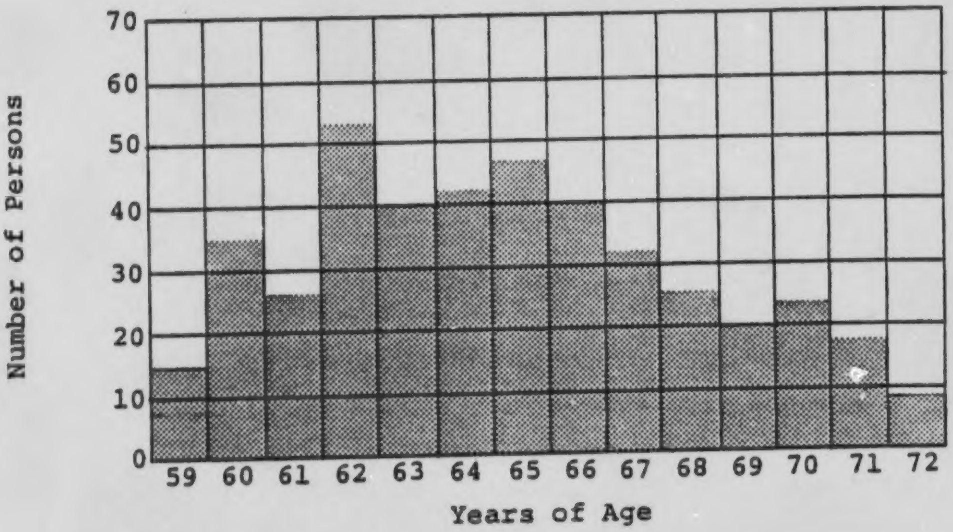
VITAL STATISTICS

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all four problems. Circle the letter of the one best choice in #1, #2, and #3. Write clearly, use complete sentences and be sure to answer all questions in answering #4.

Age of persons retiring from active employment during 1976



1. What is the most frequent age of retirement in the above sample?
    a. 62 years
    b. 64 years
    c. 65 years
    d. 68 years

2. According to the above graph, how many people retired at age 68?
    a. 20
    b. 25
    c. 30
    d. 35

Use the table below to answer Question 3.

Region or Country	Population Estimate Mid-1976 (millions)	Birth Rate	Death Rate	Rate of Population Growth (annual, percent)	Number of Years to Double Population	Population Projection to 2000 (millions)	Infant Mortality Rate	Population under 15 Years (percent)	Median Age (years)	Life Expectancy at Birth (years)	Urban Population (percent)	Per Capita Gross National Product (US$)
SOUTHWEST ASIA	**87**	**43**	**14**	**2.9**	**24**	**166**	**114**	**44**	**18.2**	**55**	**41**	**1,050**
Bahrain	0.2	44	15	2.9	24	0.5	78	44	17.8	61	78	2.250
Cyprus	0.7	18	10	0.8	87	0.8	28	32	24.7	71	43	1,380
Gaza	0.4	50	16	3.4	20	0.9	—	49	—	52	79	—
Iraq	11.4	48	15	3.3	21	24.3	99	48	16.0	53	61	970
Israel	3.5	28	7	2.9	24	5.5	23	33	25.1	71	86	3,380
Jordan	2.8	48	15	3.3	21	5.9	97	48	16.2	53	43	400
Kuwait	1.1	45	8	5.9	12	3.0	44	43	19.1	69	22	11,640
Lebanon	2.7	40	10	3.0	23	5.7	59	43	18.6	63	61	1,080
Oman	0.8	50	19	3.1	22	1.6	138	—	—	—	—	1,250
Qatar	0.1	50	19	3.1	22	0.2	138	—	—	—	—	5,830
Saudi Arabia	6.4	49	20	2.9	24	12.9	152	45	17.6	45	18	2,080
Syria	7.6	45	15	3.0	23	16.0	93	49	15.4	54	44	490
Turkey	40.2	39	12	2.6	27	71.3	119	42	19.0	57	39	690
United Arab Emirates	0.2	50	19	3.1	22	0.5	138	34	21.3	—	65	13,500
Yemen Arab Republic	6.9	50	21	2.9	24	13.8	152	45	17.6	45	7	120
Yemen (People's Republic of)	1.7	50	21	2.9	24	3.4	152	45	17.6	45	26	120

3. Demographers predict that some countries in Southwest Asia will double their population by the year 2000. How many of these countries are there?

   a. 16

   b. 2

   c. 0

   d. 14

4. What question did you ask about the vital statistics from your newspaper? How did you answer the question?

THE VERY DIFFERENT ONES

Knowing about People
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Based on the parts of the activity you chose to do, answer any two of problems 1, 2 and 3. Write clearly and use complete sentences in answering #4.

1. What first caused Alfred Wegener to begin to develop a theory of continental drift?
   a. Discoveries he made during his first Greenland expedition.
   b. Observation of the matching contours of opposite coasts of Africa and South America made from studying a world map.
   c. Experimental evidence from the work of other scientists of the time.
   d. Observations made from a balloon while he worked at the Prussian Aeronautical Observatory.

2. Why did Johannes Kepler believe that there must be some regularity in the relationship between the orbits of the planets?
   a. Because of his faith in God and in the order of creation.
   b. Because it was what earlier astronomers thought.
   c. Because it was what astrologers taught.
   d. Because of his study of Copernicus.

3. What did Ignaz Semmelweis do to cause a drop in the rate of childbed fever?
   a. He stopped allowing medical students to help with deliveries.
   b. He insisted that hands be washed before examining pregnant women.
   c. He developed a medicine to cure childbed fever.
   d. He stopped doing dissections on the days he visited maternity wards.

4. Answer this question about either Wegener, Kepler or Semmelweis.

________________ was a "very different one."
(write the name)

In what ways was he "different"?

SURVEYS, SAMPLES AND SCHOOLS

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer problems #1 and #2 and choose either #3 or #4. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering either #3 or #4.

1. What is wrong with this question for a survey? "Do you think that creep Jerry Ross is a good student council president?"
   a. It is too long.
   b. It should be a multiple-choice question.
   c. It can be answered "yes" or "no."
   d. It is a leading question.

2. For a survey, the population is
   a. the group about whom you wish to gather information.
   b. the persons who respond.
   c. the people who live in the United States.
   d. the people who live in your community.

3. Why should you select people randomly for a survey instead of just talking to your family and friends?

4. Discuss why you should test your survey instrument before you actually use it.

SIZE WISE

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1. Make a histogram in the graph section. Be sure to label your histogram. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. Which of the following statements describes the hat sizes in your class?
    a. Everyone in the class has the same hat size.
    b. Everyone in the class has a different hat size.
    c. There are a variety of hat sizes but some sizes are found more often than others.
    d. There are only 2 or 3 hat sizes and the number of students with each hat size is equal.

2. Draw a frequency histogram for the following ring sizes. Be sure to label your histogram.

NUMBER OF PEOPLE	RING SIZE
1	4 1/2
3	5
2	5 1/2
5	6
7	6 1/2
5	7
4	7 1/2
2	8

3. If you sampled your class for shoe size what would you expect to find? Why?

KNOWING YOURSELF

Knowing about People
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

Several people were asked to make a list of the three things they wanted the most. Here are three of the lists:

X	Y	Z
a car	a friend	a motorcycle
a boat	a party	an apartment
a house	a baby	a gun

1. What can you say about person X, Y and Z?
   - a. They value different things.
   - b. They value money.
   - c. They are wrong about what they value.
   - d. They would like a new bicycle.

2. What seems most likely based upon these lists?
   - a. X and Y probably have more values in common than X and Z.
   - b. X and Z probably have more values in common than X and Y.
   - c. Y and Z probably have more values in common than X and Y.
   - d. X and Y probably have more values in common than Y and Z.

3. Discuss what you learned in this activity about yourself and what you value. Use the back side, if needed.

A MARTIAN TEST

Knowing about Mars
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best answer in #1 and #2. Write clearly and use complete sentences in answering #3.

1. Suppose that the results from your Mars questionnaire were as follows:

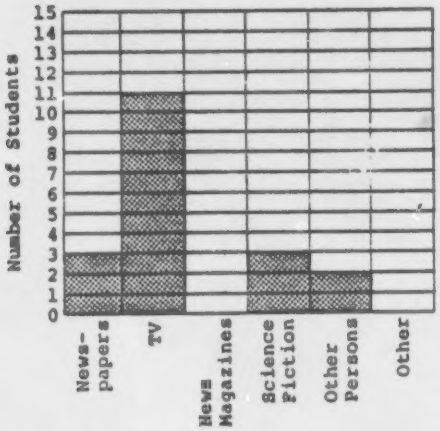
Number of Correct Answers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Students					1			3	3		2		2	1	1	2				
Adults				1		2		4	3	1	2		1	1						

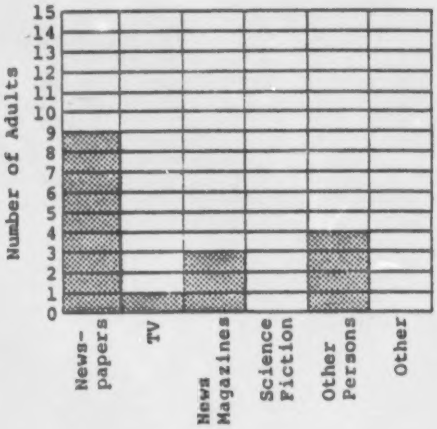
What statement is the best interpretation of your results?

a. Students know more about Mars than adults do.
b. Adults did not do as well as students on the questionnaire.
c. Most people know very little about the planet Mars.
d. Students are more knowledgeable because they are still learning in school.

The histograms below show one student's results from interviewing 15 students and 15 adults about Mars?

Question: What has been your most important source of information about Mars?





2. What is the best interpretation of the results?
   - a. Adults do not watch TV.
   - b. Students and adults probably use different sources of information.
   - c. Adults read the newspaper more than students.
   - d. Students and adults use the same sources for information.

3. What sources of information seemed to be the most accurate for the people you interviewed?

MARTIAN TALES

Knowing about Mars
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer both problems. Circle the letter of the one best choice in #1. Write clearly, use complete sentences and use your imagination for #2. Use the back of the page if needed.

1. Science fiction usually has
   a. no scientific basis but a lot of imagination.
   b. some scientific basis and a lot of imagination.
   c. a lot of scientific basis but no imagination.
   d. some scientific basis and no imagination.

2. Use the facts about Mars (a, b, c) to write a short scene that could be a part of a science fiction story:
   a. The planet appears reddish in color.
   b. There are very large volcanos on Mars.
   c. There are very high winds on Mars.

MOVING WORDS

Notions of Motion
Knowing

Problems to Solve
Name ________________
Teacher ________________
Date ________________

Directions: Answer three problems. Circle the letter of the one best choice in #1. Write your answer to problem 2. Choose either #3 or #4 to answer. Write clearly, use complete sentences and be sure to answer all questions in either #3 or #4.

A. SLITHERING SNAKE
B. The snake's alternating muscular contractions caused its body to move through the sand.

1. Considering the words in A and B above
   a. A is a scientific expression and B is an aesthetic expression.
   b. A is an aesthetic expression and B is a scientific expression.
   c. Both A and B are aesthetic expressions.
   d. Both A and B are scientific exprssions.

2. Describe how you grouped the "Moving Poems" in this activity. What features did you use to make groups? What other ways could you have used to make groups?

3. Which poem or prose selection that you read in this activity was your favorite? How did it convey a feeling of motion?

4. Write something (poem, prose) that conveys motion using words that rhyme with the word motion. Do not use the word motion itself in your poem.

DANCING MOTION

Notions of Motion
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

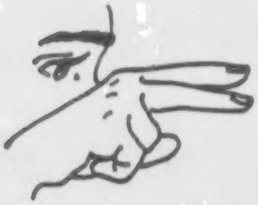
Directions: Answer all three problems. Circle the letter of the one best choice in #1. In #2, write about one of the three feelings. In #3, write the number of the matching word in the small blank and then write an explanation of why you made that choice.

1. To dance "welcome" in a stylized dance like hula, dancers would
   a. create a different movement each time "welcome" was to be shown.
   b. use a movement that would be easily recognized by persons who understand "hula language."
   c. create a movement that would be used whenever "welcome" was to be shown.
   d. sing a song that said "welcome" and dance however they felt at the moment.

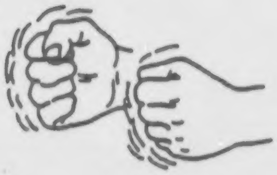
2. Explain how you would express one of the following in a dance:
   Fear,
   Intelligence or
   Power

3. Hula dancers communicate with their hands during their dance just as American Plains Indians do. Match the sign language on the left with the appropriate message on the right by filling in the blank after the word is. Then give the reason for your choice.

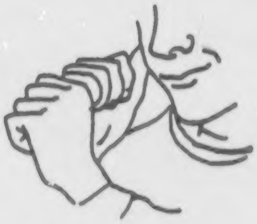
a.



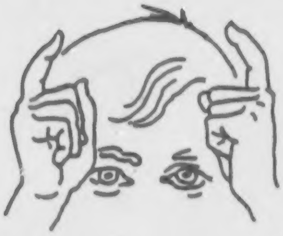
b.



c.



d.



1. Truth
2. Fight
3. See
4. Big
5. Carry
6. Buffalo
7. Mountain

a. is ____ because ________

____

b. is ____ because ________

____

c. is ____ because ________

____

d. is ____ because ________

____

VIBES

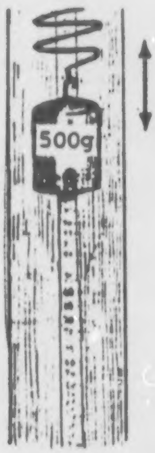
Notions of Motion
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

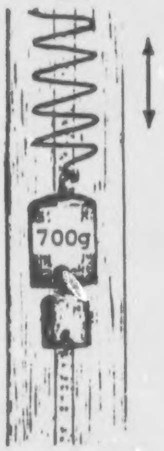
Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in #3.

1. The drawings below use the same spring. Only the load has been changed. In which situation will the frequency be the greatest when the spring vibrates?

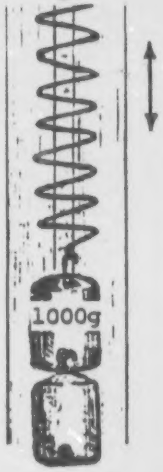
A



B



C



   a. A
   b. B
   c. C
   d. The frequency will be the same for A, B and C.

2. The table shows data for a vibrating spring loaded with a 700 g mass.

LOAD	AMPLITUDE	FREQUENCY	PERIOD
700 g	8 cm	60 vib./min.	1.00 seconds

If the amplitude is changed to 16 cm which one of the following would be true?

a. The frequency would increase noticeably.

b. It would take more time for one vibration.

c. The spring would move faster but the frequency and period would be the same.

d. The frequency would not change but the period would be longer because of the increase in amplitude.

3. Explain what would happen to the frequency, amplitude and period if the load of a spring is increased.

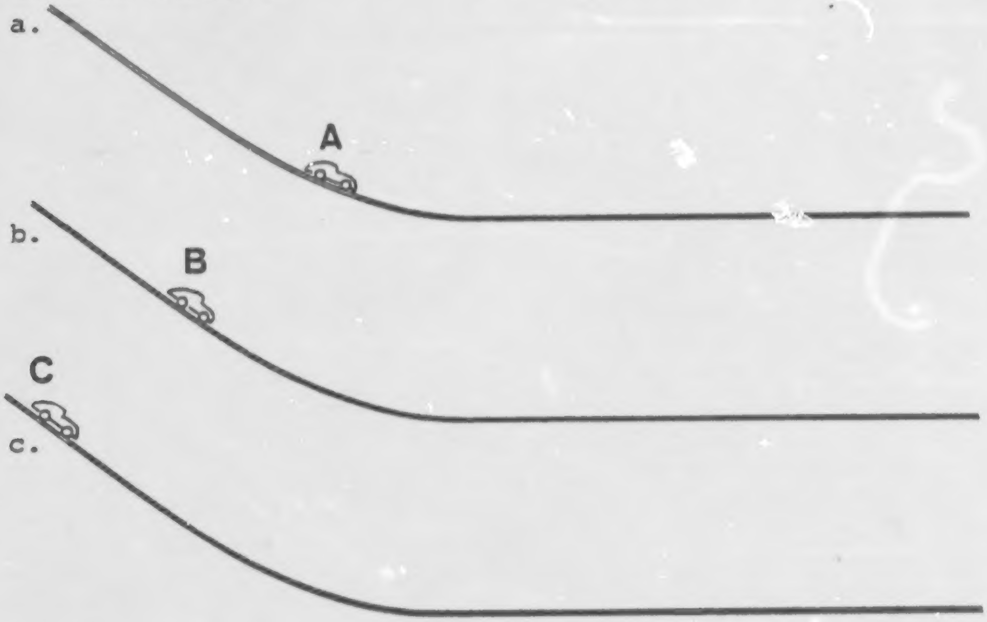
ROLLING ALONG

Notions of Motion
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

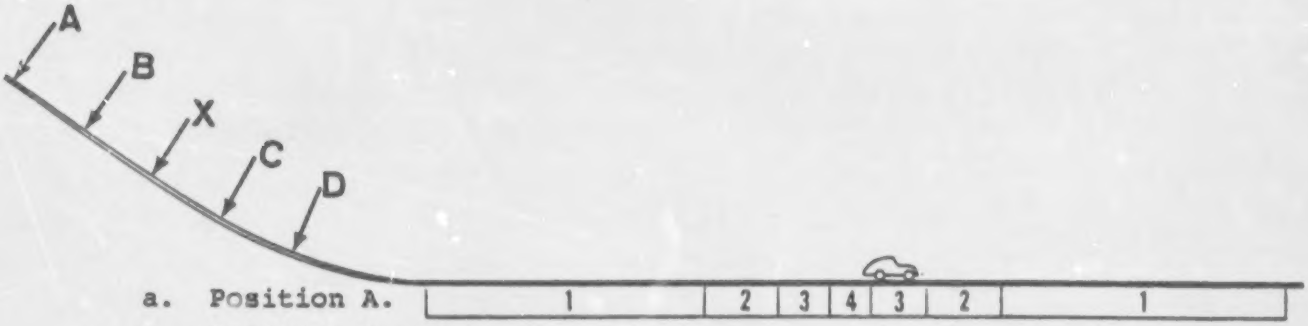
Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. In which case will the car coast the farthest? Assume that the same car is used in each case. Cars start at the point shown in each drawing.



d. The cars in a, b, and c above will all coast to the same distance.

2. Notice where the car stopped when it was released from point X on the incline. In order to score 4 points, at what position would you most likely release the car the next time?



a. Position A.
b. Position B.
c. Position C.
d. Position D.

3. Explain how to change the coasting distance of a car without changing the incline or the starting point of the car.

MAGIC MOTION

Notions of Motion
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

Frank placed a piece of plastic on his window sill one morning before he left for school. When he returned that evening he noticed that it was all curled up. He was curious about what had caused the plastic to curl. He secured identical pieces of the plastic and performed experiments with them. The record of his first experiment is as follows:

1ST EXPERIMENT RESULTS

Condition	Temperature	Relative Humidity	Plastic Reaction
Light	21°C	50%	not curled
Dark	21°C	50%	not curled

1. What idea was Frank testing in his first experiment?
   a. Temperature caused the plastic to curl.
   b. Relative humidity caused the plastic to curl.
   c. Light or dark caused the plastic to curl.
   d. Magic caused the plastic to curl.

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After the first experiment Frank conducted another experiment as shown in the following results:

2ND EXPERIMENT RESULTS

Condition	Temperature	Relative Humidity	Plastic Reaction
Light	10°C	50%	not curled
Light	20°C	50%	not curled
Light	30°C	50%	not curled
Light	20°C	10%	not curled
Light	20°C	50%	not curled
Light	20°C	90%	curled

2. The best thing Frank could say after his second experiment is
   a. temperature changes probably caused the plastic to curl.
   b. temperature and relative humidity changes together caused the change in the plastic.
   c. relative humidity changes probably caused the plastic to curl.
   d. light caused the plastic to curl.

3. Describe people's reactions to your "magic" trick with the ball and tube. How did they react when they found out the explanation for the motion?

THE RAINMAKERS

Whatever the Weather
Knowing

Problems to Solve

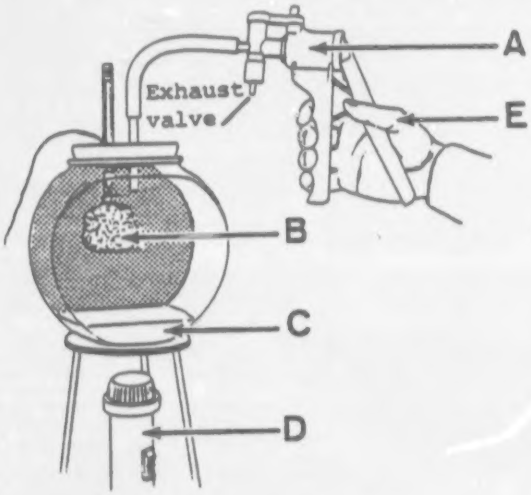
Name ________________

Teacher ________________

Date ________________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. Rainmakers
   - a. are trying to trick people.
   - b. have been active in a number of cultures throughout history.
   - c. have been very effective in producing rain throughout history.
   - d. are alike in that they cannot produce rain.



2. Which of the lettered objects above would have the least effect on the amount of rain that falls from B?
   - a. A
   - b. C
   - c. D
   - d. E

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3. In what ways are the Hopi and Arunta rainmaking ways similar to the "scientific" ways of making rain? How are they different?

WEATHER MUSIC

Whatever the Weather
Knowing

Problems to Solve

Name ________________

Teacher ________________

Date ________________

Directions: Answer all three problems. Circle the letter of the one best choice in #1. Fill in the blanks in #2. In #2 and #3, write clearly, use complete sentences and be sure to answer all questions.

1. An aesthetic expression of knowledge about weather is different from a scientific account of weather in that
   a. aesthetic expressions are always musical.
   b. aesthetic expressions do not involve feelings.
   c. aesthetic expressions are "personal."
   d. aesthetic expressions are based on experiment.

2. My favorite classical "weather music" selection was ______________ because ______________. (Describe what you particularly liked about the selection and how you think the composer used music to express something about weather.)

3. In Part II of the activity you were asked to choose the selection you liked best and then to find another way (artistic or through creative writing) to express the feeling about weather that the musical composition expressed. Describe what you did and the response of class members to it. Use the back side, if needed.

THE WEATHER ACCORDING TO GRANNY OAKES

Whatever the Weather
Knowing

Problems to Solve
Name ____________
Teacher ____________
Date ____________

Directions: Answer all three problems. Circle the letter of the one best choice in #1. Write clearly, use complete sentences and be sure to answer all questions in answering #2 and #3.

1. One of the weather sayings from the envelope stated "If you see a dog eating grass, it will rain soon." Which of the methods below would be least useful in testing the accuracy of the saying?
   a. Your own common sense and discussions with your friends.
   b. Learn about dogs and about rain from reading reliable books.
   c. Test the accuracy of the saying by observing dogs as often as possible.
   d. Talk to veterinarians, meteorologists and other experts on rain and dogs.

2. Which of the methods of testing weather sayings seems most dependable? Why?

3. Explain why you think "Granny Oakes" might believe in one of the following statements. Use the back side, if needed.
   a. "Dark clouds in the west, stay indoors and rest."
   b. "When windows won't open and salt clogs the shaker, the weather will favor the umbrella taker."

DO DEW DROPS DROP?

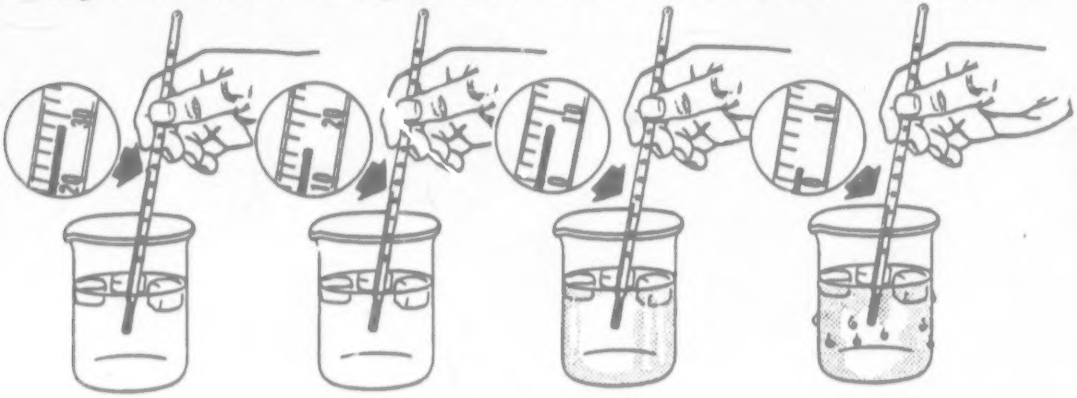
Whatever the Weather
Knowing

Problems to Solve
Name ______________
Teacher ______________
Date ______________

Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly, use complete sentences and be sure to answer all questions in answering #3.

1. Under which of the following conditions is dew most likely to form?
   a. warm, moist day followed by a cool night
   b. warm, moist day followed by a warm night
   c. warm, dry day followed by a cool night
   d. warm, dry day followed by a warm night

The diagrams show the temperature of the water every 5 minutes.

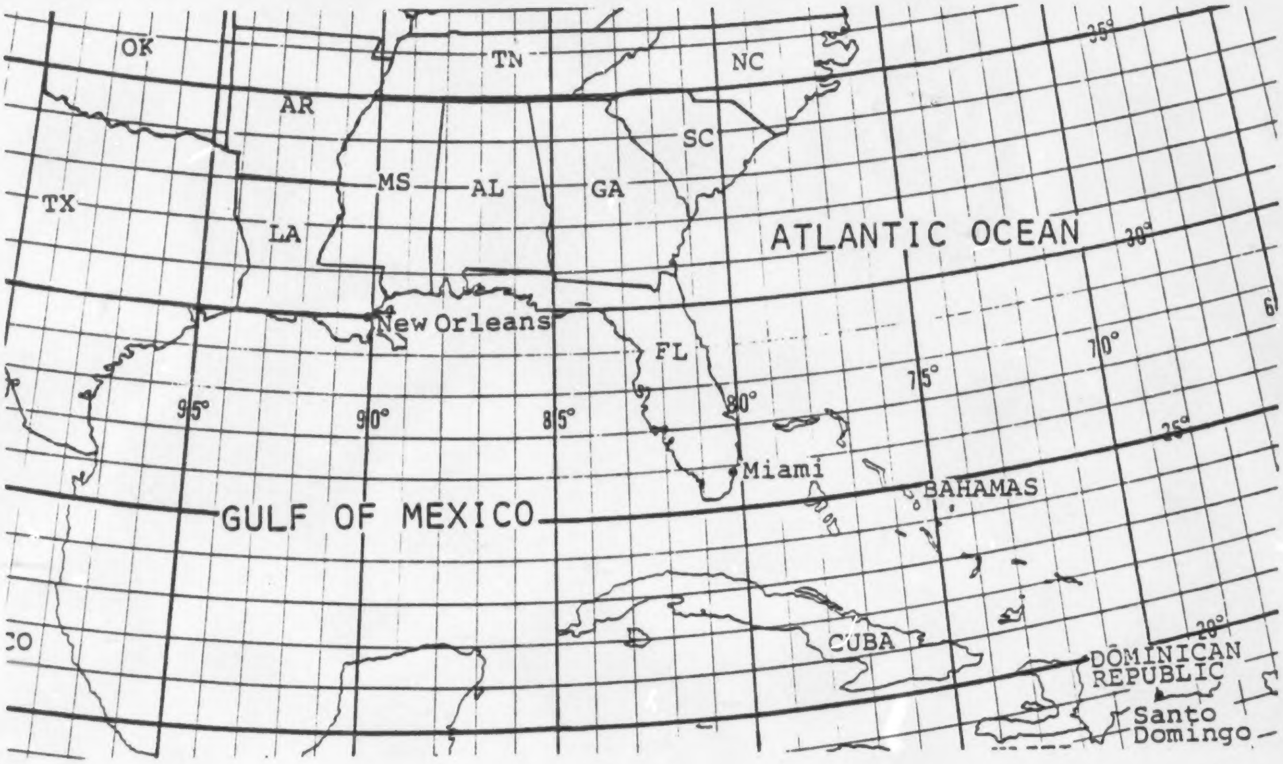


5 Min. 10 Min. 15 Min. 20 Min.

2. What is the dew point?
   a. 28°C.
   b. Between 16° and 27°C.
   c. Between 8° and 15°C.
   d. Between 2° and 7°C.

3. Where do dew drops that form on your lawn come from? How do you know. Use the back side, if needed.

4. Where do dew drops that form on your lawn come from? How do you know?


OK
TN
NC
AR
SC
MS
AL
GA
TX
LA
ATLANTIC OCEAN
New Orleans
FL
95°
90°
85°
80°
75°
70°
35°
30°
25°
20°
Miami
BAHAMAS
GULF OF MEXICO
CUBA
DOMINICAN REPUBLIC
Santo Domingo

2. Use the Hurricane Tracking Chart above. The longitude and latitude of New Orleans is about
   - a. 90°N, 30°S.
   - b. 30°N, 90°E.
   - c. 30°N, 90°W.
   - d. 90°S, 30°N.

3. The straight line distance between Miami, Florida and New York City is about 1770 km. The distance between these cities on a map was 20 cm. How many km would one mm represent?
   - a. 0.11
   - b. 35400
   - c. 1750
   - d. 8.85

THE STORM

Whatever the Weather

Problems to Solve

Name ________________

Teacher ________________

Date ________________

Directions: Answer all three problems. Write clearly, use complete sentences and be sure to answer the question in #1. Circle the letter of the one best choice in #2 and #3.

1. Discuss the problems involved in warning people about a weather disaster such as a hurricane.

HEAVENLY MOTION

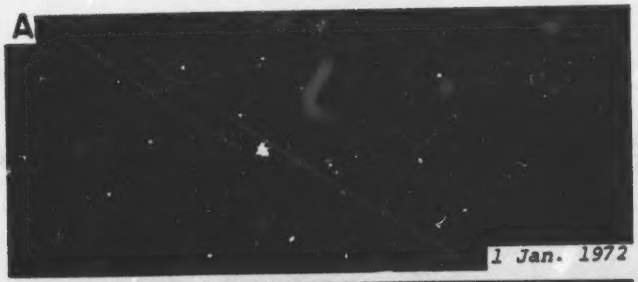
Notions of Motion
Knowing

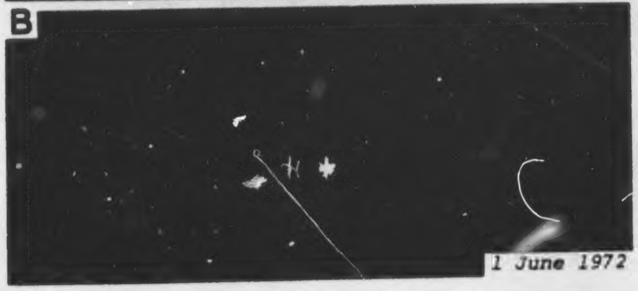
Problems to Solve
Name ____________________
Teacher ____________________
Date ____________________

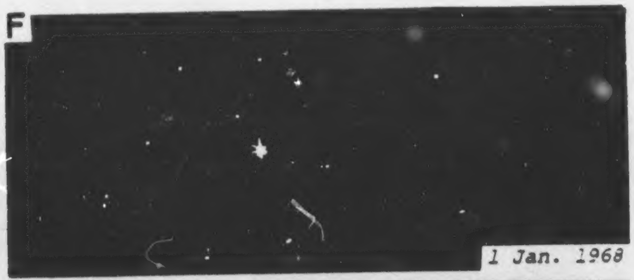
Directions: Answer all three problems. Circle the letter of the one best choice in #1 and #2. Write clearly and use complete sentences in answering #3.

1. One principle astronomers use to track a comet is based on the rule that
   a. the distance from the comet to the sun stays constant at all points in its orbit.
   b. the area from the sun to the comet at all points in the comet's orbit sweeps out equal areas in equal times.
   c. the comet's orbit is equal in area to the orbit of the earth around the sun.
   d. as comets approach the sun they move slower and then they speed up again as they get farther away.

2. Which series of pictures below shows proper motion?
   a. A-E
   b. F-J
   c. Neither A-E nor F-J.
   d. Both A-E and F-J.

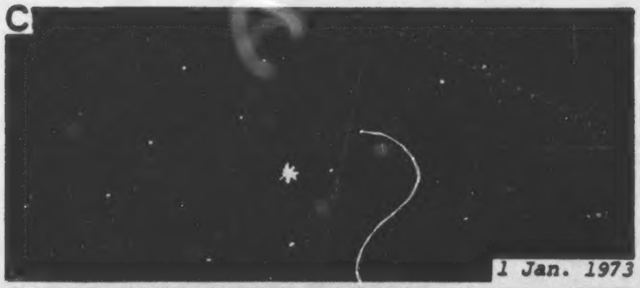
A


B


F


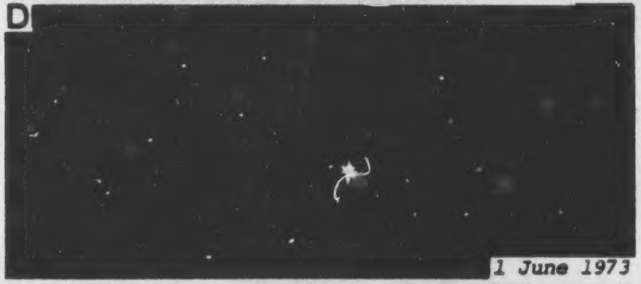
G

C



1 Jan. 1973

D

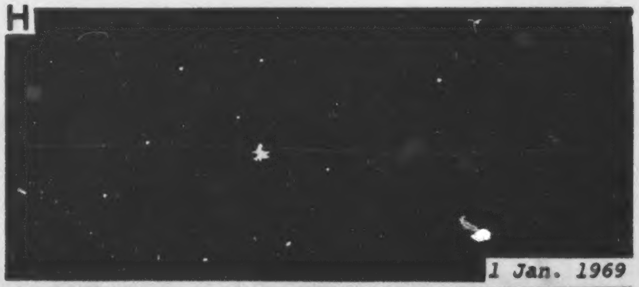


1 June 1973

E

1 Jan. 1974

H



1 Jan. 1969

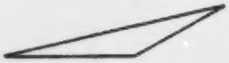
I

1 June 1969

J

1 Jan. 1970

3. Explain how you would calculate the area of the triangle below.



KEY TO PROBLEMS TO SOLVE
Knowing the Past

The Strange Fossil

1. b   2. a

3. Examples of inferences

   It hopped/it waddled/it stood on its hind legs with its front legs off the ground

   It ate meat/was a carnivore/killed animals for food/held its prey with its front feet

Time Travel into the Paleozoic

1. b   2. d

3. Three possibilities:

   a. Represents time--each layer was formed at a different period of time/the bottom layers are oldest/time is not accurately represented because of unconformities

   b. Represents rock formations--each layer is represented in thickness relative to its thickness in the Grand Canyon/each rock formation is a different color or is poured as a separate layer

Counting with Carbon

1. d   2. b

3. Radioactive dating is useful because scientists can find out how long it takes different radioactive things (elements/atoms) to change. When they know this they can find out how old something is. For example, living things get carbon in food. A little bit of the carbon is radioactive when they die they can't take anymore carbon into their bodies so scientists can tell when they died by how much radioactive carbon is left.

Rosetta II

1. d 2. b

3. Answers could include the following:

Nomo. In Nomo the priests have much authority. The farmers probably support the priests through their offerings. The people believe the gods have the power to punish them if they do wrong. The society is governed by law and is at least partially rural.

Scribly. The society expects its youth to participate in rigorous military training. It may be a warlike society. The society has military heroes who are models for the youth to look up to. Youth live away from home during military training.

Wosak. Wosak is an agricultural and training society. It produces wheat, oats, barley and flax. Goats are raised for meat; fish are caught, dried and later sold. The skins of animals are useful and sold. A numbering system has been developed. Records and accounts of business transactions are kept.

Where Did We Come From?

1. d 2. c

3. Responses will vary depending upon the two creation myths chosen to compare. Answers might include the following:

All four creation myths include a supernatural creator or creators (Arunta-Numbakula; Navajo-Holy People/Changing Woman; Polynesia-Tangaroa; Hopi-Taiowa/Sotuknang/Spider Woman) who create both the physical aspects of the earth and human beings. These creators have varying characteristics which could be used to describe how they differ.

The Navajo and Hopi myths are similar in that they both portray a holy woman (Navajo-Changing Woman; Hopi-Spider Woman) who creates twins. The twins have many adventures. These holy women create the first human life. Details of the description of the two women and the twins could be used to show how they differ.

The Arunta and Polynesian myths are similar in that the creaters (Numbakula and Tangaroa) create many things out of themselves.

Patterns in Your Past

1. b 2. b

3. Response will vary with students. Look for:

   a. clear expression of pattern.

   b. evidence for inferring that a pattern exists.

Pueblo People in the Past

1. d 2. a

3. The Yellowjacket Site is from the Classic III, or Classic Pueblo Period, A.D. 1100-1300.

   Evidence cited could include:

   The presence of artifacts appropriate to this period. As stated in the PuebloIII description "Houses, pottery, weaving and ornaments were elaborate." The corrugated and decorated potsherds (artifacts #8-13) are evidence, as is the pendant (artifact #6). Both corner and side-notched projectile points (artifacts #1 and 2) are present. The presence of a "keyhole" kiva as shown on the Yellowjacket Site map is also appropriate evidence.

Heavens Above

The Solar Merry-Go-Round

1. d 2. d

3. I would figure out a way to test each model. The next step would be to design a test of each model. It would be even better to design one test that would show that one model was right and the other, wrong.

Sun Watch

1. c   2. d

3. Sunspots are difficult to observe because the sun is so bright/puts out so much energy that it burns eyes or photographs. Filters are used to reduce the glare so that sun spots can be seen.

The Star Gazers

1. a   2. b

3. The ancient beliefs about Leo were similar in that lions were believed to have special powers. The beliefs were different in that the Summarians thought that Leo had powers to burn crops and destroy animals; the Greeks believed that Leo fell from the moon; and the Egyptians believed that Leo was responsible for heat and water in the summer.

What Do the Stars Know?

1. d   2. c

3. They are two different ways of knowing. OR Nancy is judging astrology as a science. It is not science, but some people find it satisfying. OR Astrology and astronomy serve different purposes. Some people believe the stars and planets influence human lives so for them astrology serves an important purpose. There is no scientific proof that the stars and planets influence human lives so people who use science as a measure say astrology is hocus pocus.

The Human Body

Human Ideas About Disease

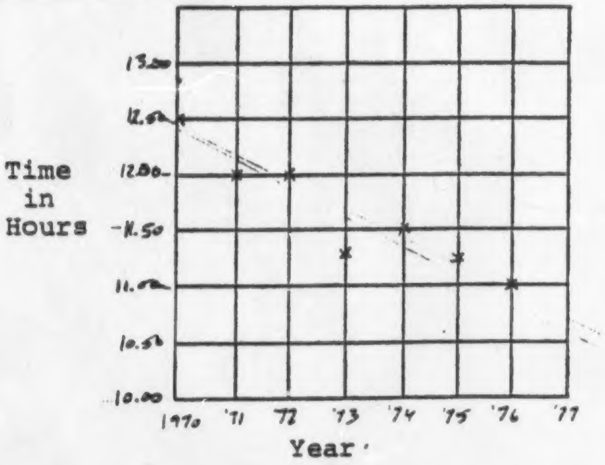
1. d   2. b

3. Arunta. They believe that disease is caused by magic, that there are no natural causes for disease. (Position and reasons will vary.)

   Navajo. They belive that disease is an upset in the harmony of the universe. This upset can be caused by ghosts, witches, by breaking rules and by enemy contact with certain things. (Position and reasons will vary.)

   Hawaiians. Disease was brought into the Hawaiian Islands by spirit people. It was cured by Kamaka and Lonopuka who was taught by Kamaka how to use plants and herbs. (Position and reasons will vary.)

Farther and Faster



1. Graph axis labeled and points plotted.
2. Trend line drawn in general area of lines on the graph above.
3. Range of 10.50 to 10.75.

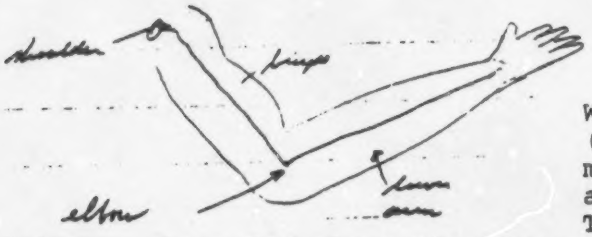
Hot Spit

1. c 2. b
3. The cracker is in smaller pieces, it is wet, it has less starch than it had in the box. I know that because I experimented with crackers and found that starch disappeared often being mixed with saliva.

Levers of the Body

1. b 2.

Name of joint	Kind of motion	Kind of joint
Shoulder/hip		Ball and socket
Wrist/ankle		
	Back and forth	Hinge

3. 

When you lift something (a load) in your hand the muscle in the biceps applies a force in the lower arm. The elbow joint is the fulcrum, the point where the lever (the arm) pivots. To move the load, the muscle applies the force to the arm with the elbow acting as the fulcrum or pivot of the arm as a lever.

Knowing About the Brain

1. a 2. b

3. The case of Phineas Gage was important in the scientific study of the brain because Phineas Gage lived after part of his brain was destroyed.′ A doctor studied the changes in Phineas Gage's behavior caused by the brain damage.

A Way of Seeing Inside the Human Body

1. a 2. c

3. Soft parts of the body, like the stomach show up as very dim lines in an x-ray. Also, a dye can be swallowed to make the stomach show up on x-rays. I have seen x-rays with the stomach dyed. It is very white as an x-ray.

Materials and Shapes

Building with Bricks

1. c 2. a

3. Bricks in an arch are stronger than the same kind of bricks in a straight line, a lintel. I built a port and lintel door and an arched door of the same kind of bricks. The arch held up more weight before breaking than the post and lintel did.

Foiled Again

1. b

2. If the blocks were not exactly the same distance apart you couldn't compare the different tests in the experiment./The distance was a variable that would effect the results of the experiments so it had to be controlled.

3. [Drawings will vary with each class.]

Materials in Space

1. c
2. (Will vary for each student.)
3. (Will vary for each student.)

In each response look for substance and communication. Can you or another reader understand the response? Were the questions posed answered?

Building Materials: How Good Are They?

1. b
2. c
3. Possible information wanted: cost, strength, hardness, beauty, workability, density, ease of cleaning...

   Making final judgment: look for combination of physical economic and aesthetic factors.

KEY TO PROBLEMS TO SOLVE
Knowing People

Images of Brush and Pen

1. b

2. Answers will vary with each student.

How Old Are They?

1. c

2. Possible characteristics: wrinkles, hair greying, skin blemishes (dark spots) (Justification for the one most useful characteristic should how how it is useful to distinguish ages. For example, skin blemishes

The Unknown Millions

1. d 2. b

3. All old people are not alike--(then give some examples).

Vital Statistics

1. a 2. b 3. d

4. (Answers will vary.)

The Very Different Ones

1. b 2. a 3. b

4. For Wegner -- He proposed theories outside his scientific specialty.

Kepler -- He was a scientist but believed in astrology; or he searched for religious harmony on the movement of the stars and made important scientific discoveries.

Semmelweis -- Fought for his ideas against established medical practice.

Surveys, Samples and Schools

1. d 2. a

3. People should be selected randomly if you want to generalize what you find to more people than those you survey.

4. You should test your survey instrument to find out

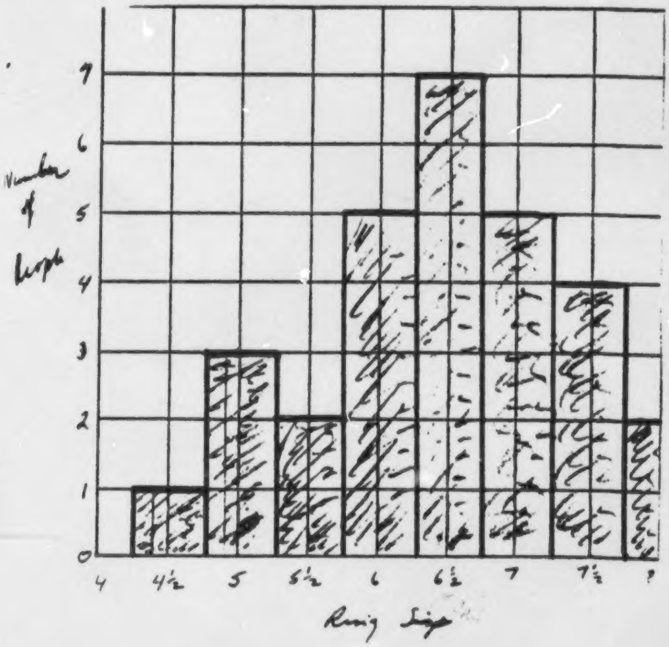
   (a) if different people interpret a question differently.
   (b) if more than one question gives the same information--and can be eliminated.
   (c) if the information you get is what you wanted to find out about.

Size Wise

1. c

2. ________

3. The shape of the histogram would probably be similar to the shape of the histogram for ring size.



Knowing Yourself

1. a 2. b

3. (Will vary with the individual.)

Knowing About Mars

A Martian Test

1. b 2. b

3. (Will vary with individual.)

Martian Tales

1. b

2. (Will vary with individual.)

Four Views of Mars

1. b   2. d

3. The key idea is that the newer technology (Viking Lander) enhanced and increased our knowledge of Mars over that gained by the older technology--the telescope.

   Generally, Lander observations are more detailed, more microscopic, and involved more elaborate scientific techniques, whereas telescopic observation were general, macroscopic and left much to human imagination and speculation.

   It is difficult to compare the quantity of new information gained from each of the two methods of observation.

   In many instances the Viking Lander observations continued telescopic observations, in some cases inferences from telescopic observation (such as presence of canals) were refuted and, of course, much of the data and related inferences were new.

Notions of Motion

Moving Words

1. b

2. (Response will vary with the individual.)

3. (Response will vary with the individual.)

4. (Response will vary with the individual.)

Dancing Motion

1. c

2. (Response will vary with the individual.)

3. a. 3 because fingers point out from the eyes.
   b. 2 because fists are clenched and moving.
   c. 5 because hands are as if they were holding something.
   d. 6 because fingers are like horns.

   (Note: There could be other choices with plausible reasons.)

Vibes

1. a (or A) 2. c

3. If a load in a spring is increased the frequency is slower, the amplitude is greater and the period is longer.

Rolling Along

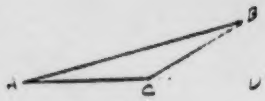
1. c 2. c

3. Increase the weight of the car.

Heavenly Motion

1. b 2. a

3.



$\frac{1}{2}$ of 21 rectangle = area of ABD

$\frac{1}{2}$ of 8 rectangle = area of BCD

Area of ABC = $\frac{1}{2} \times 21 - \frac{1}{2} \times 8 = 10.5 - 4$

= 6.5 rectangles

Magic Motion

1. c 2. c

3. (Response will vary with the individual.)

Whatever the Weather

The Rainmakers

1. b 2. c (or d)

3. Like scientific way: no way to make rain seems very good.

Unlike scientific way: use dances, all kinds of rituals and chants which scientists never use.

The Weather According to Granny Oakes

1. a

2. (Response will vary with the individual.)

3. If a is chosen: Dark clouds could mean a storm. In the Northern Hemisphere many storms come from the west so the saying might be useful.

   If b is chosen: Sticking windows and clogged salt shakers are probably caused by moisture (humidity) in the air. It could mean that rain is about to fall so an umbrella is a good idea.

Do Dew Drops Drop?

1. a 2. b

3. (a) Dew drops on the lawn came from the air./The grass is cooler than surrounding air. Air in contact with grass is cooled. When air is cooled moisture in the air may condense on the cool surfaces of the grass. (b) You could test by using a beaker of ice cubes. Moisture will form on the beaker if moisture is forming on the grass blades./Put a bubble cover over a part of your lawn with a heater inside. Dew will form outside if it gets cool enough at night, but dew won't form inside.

The Storm

1. People don't take warning seriously. They think it won't hit them. Weather forecasting is not 100% accurate so people don't always believe a storm warning. If you force people to leave their homes and then the storm doesn't hit their homes, they get upset.

2. c 3. d

SCORING SUGGESTIONS FOR ACTIVITY PROBLEMS TO SOLVE

Introduction

Problems to Solve for each activity include at least one objective problem and one essay problem. For most activities, two objective problems and one essay problem are provided.

This booklet contains answer keys for the objective problems and suggested responses for many of the essay problems. Many activities are open-ended and require unique responses for essay problems. The Essay Problems Section is provided to help you score and report to students your reasons for scoring their responses to essay problems.

Objective Problems

Use the key judiciously in scoring the objective problems. The problems have not been previously tested and may have ambiguities for students that do not appear to be ambiguities to adults. The purpose of evaluation is to help students learn where misunderstandings have occurred and to clarify the problem. You may wish to record scores on objective problems separately by activity until you finish the first group of clusters or until the end of the module. At this time you could total scores and calculate percentage correct. For example, for an activity with two objective problems, both answered correctly, you could score 2/2; for one answered correctly 1/2. Totals at the end of the Group I or Group II and/or at the of the module could be converted to percentages and then changed into grades. In this way, the number of activities completed does not enter into the judgment of quality of work.

Essay Problems

Writing responses to essay problems enables students to develop both writing skills and intellectual skills. Students learn to write by writing. The essay problems are designed to stimulate thought and reflection about each activity. If you find students who cannot respond to the particular essay problem as written encourage them to write about the activity; to tell someone what they did, how they felt about it or why they liked or didn't like it. Encourage them to try. The key is to initiate writing with the purpose to communicate something to someone else.

In some classes or with some individuals you may want to apply only one criterion:

Is the response understandable?

You might use one of three comments in the student's paper and use the scoring code for your grade book.

1. I understand your answer.	Code 01
2. You started with a clear statement but then you lost me.	Code 02
3. Your words don't make sense to me, let's talk when you start your next essay problem.	Code 03

With some students or later in the module you may wish to add or replace the above criterion with this one:

Does the response answer the question?

Comments and scoring codes for this criterion could be:

1. Your response answered the question completely. Code Q1
2. Your response only partly answered the question. Code Q2
3. Your response missed the point of the question. Code Q3

For students who have developed communicative writing skills, for some essay problems, or in addition to one of the above criteria you might want to indicate to the student the quality of the substance (accuracy) of the response. The criterion:

Is the response correct?

Comments and scoring codes for this criterion could be:

1. Your answer is correct. Code C1
2. Your answer is only partly correct. Code C2
3. Your answer is not correct. Code C3

By reviewing one, two, or all of the above codings in your grade book you will have a good picture of the trend of each student's development as a writer. You may also wish to develop other criteria, comments and codes more suited to the students skills development.

Scores for essay responses are not to be added. Rather, the goal is for students to move level "3" to level "1" for each criterion. Grades for essay work (writing skill development) is when the student ends up, not where he or she began. Recognize and reward development.

Summary

You may wish to hold Problems to Solve sheets by activity and then pull together groups of students with similar skill development. In this way you can share different responses to an essay question with the group, discuss the goals of essay problems and help them with suggestions before they work on "Problems to Solve" again.

A paper, "A Second Look at Ten Writing Rules" is attached to give you a more substantive account of the basis for this approach to evaluation and skill development.

CODING PROTOCOLS

KNOWING--Activity Problems to Solve

Card 1

Col. 1-10--Student Identification number

The Strange Fossil			Scoring
Col. 11	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	2=1; 1, 3, 4, 5, 6=3
Col. 12	--2.	(same as 1)	1=1; 2-6=0
	3.	[Essay] Code all responses related to motion, walking, flying, etc.	
Col. 13	--3A.	1=it hopped/walked on hind legs/probably walked on two legs/climbed trees/tore with its teeth 2=soaring bird 3=swift/fast/ 4=incorrect mammal analogy (like a tiger/any animal walking on all fours) 5=like a gorilla 6=no comment on motion 7=no response/blank	1,2=2; 5=1; 4, 6, 7=0
Col. 14	--3B.	Code all responses related to eating. 1=it ate meat/a carnivore/ ate other animals 2=ate hand food 3=ate leaves/ate trees 4= 5= 6=no comment on eating 7=no response/blank	1=1; 6,7=0

Time Travel into the Paleozoic			Scoring
Col. 15	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	2=1; 1, 3, 4, 5, 6=0
Col. 16	--2.	(same as 1)	4=1; 1, 2, 3, 5, 6=0
Col. 17	--3.	[Essay] Code explanation of what model of the Grand Canyon represents 1=layers on top usually newer 2=different layers and rock substances 3=time, stages in building the Canyon 4=change 5=ambiguous (how long each group of years lasted)/ Grand Canyon is very old 6= 7=no response	

Counting with Carbon			
Col. 18	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	4=1; 1, 2, 3, 5, 6=0
Col. 19	--2.	(same as 1)	2=1; 1, 3, 4, 5, 6=0
Col. 20	--3A.	[Essay] Code for why is radioactive dating useful to scientists 1=some atoms are radioactive and the relationship of radioactive/not radioactive- gives date 2=useful for telling how long it has been since something died 3=can help with archeology & learning about the past/tell how old things are 4=usually right and easy to read 5= 6=not codeable 7=no response	1=1 7=0

Counting with Carbon (cont.) — Scoring

Col. 21 --3B. Two examples in answer
1=2 correct examples

2=1 correct example

3=1 correct and 1 incorrect example

4=

5=

6=not codeable

7=no examples used — 1=2; 2, 3=1; 4, 5, 6, 7=0

Rosetta II

Col. 22 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 4=1; 1, 2, 3, 5, 6=0

Col. 23 --2. (same as 1) — 2=1; 1, 3, 4, 5, 6=0

Col. 24 --3. [Essay]

1=Nomo, priest has much authority/offerings to gods/agricultural/gods will punish them/gave crops to gods/religious society

2=Nomo, more advanced society, clearer writing/hard workers & fair people like us/wrote with a lot of numbers/liked simple drawings/sophisticated society/writing like ours with similar meaning

3=Skribly, military training/warlike/trained away from home

4=Skribly, traditional

5=Wosak, keep food in jars/raised crops, goats/traded/numeral & measuring system

6=Wosak, wrote in pictures/like cavemen/drew animals of the forest/artistic language/means of transportation

7=no response/not codeable — 1, 3, 5=1; 2, 4, 6, 7=0

Where Did We Come From?			Scoring	
Col. 25	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	4=1; 1, 2, 3, 5, 6=0	
Col. 26	--2.	(same as 1)	3=1; 1, 2, 4, 5, 6=0	
Col. 27	--3A.	[Essay] Comparison of cultures, alike		
		1=Navajo, Hopi: both portray holy woman/basically alike		
		2=Arunta, Polynesian: creators (Numakula and Tangaroa) create many things out of themselves		
		3=general comparison, such as: belief in their myths/ 1 or 2 great persons in each myth/belief in creator(s)/ tell stories of ancestors/ repeated each generation, exaggerated each time		
		4=didn't think tape or folder said anything about question		
		5=		
		6=		
		7=no response to "How are They Alike?"/not codeable	1, 2=2; 3=1	7=0
Col. 28	--3B.	[Essay] Comparison of two cultures, differences		
		1=Arunta, Navajo: A, disease caused by magic, N, disease caused by upset in harmony, A, medicine men cure disease; N, restore harmony		
		2=		
		3=general comparison, contrasts such as: different cultures		
		4=didn't think tape or folder said anything about question		
		5=Navajo: earth already exists-- Polynesian: earth is being created by Tangaroa		
		6=		
		7=no response to "How are they they Different?"/not codeable	1,2=2; 3=1	7=0

Patterns in Your Past

			Scoring
Col. 29	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	2=1; 1, 3, 4, 5, 6=0
Col. 30	--2.	(same as 1)	2=1; 1, 3, 4, 5, 6=0
Col. 31	--3.	[Essay]	
		1=extensive account, two or more patterns in family	
		2=made own different pattern/ same number of males and females/illustrated family pattern/large & small family	
		3=more people on one side/ one generation/boys than girls	
		4=intermarriage, cousins/	
		5=single characteristics: no real aunts or uncles/ right-handed/early death by disease/blue eyes/tongue rolling/family occupations/ all live in same house/ brown hair	
		6=not codeable/illegible	
		7=no response	1=2; 2, 3, 4, 5=1; 6,7=0

Pueblo People of the Past

Col. 32	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	4=1; 1, 2, 3, 5, 6=0
Col. 33	--2.	(same as 1)	1=1; 2, 3, 4, 5, 6=0
Col. 34	--3A.	[Essay] Time period	
		1=1100-1300AD/Pueblo III	
		2=700-900AD/Pueblo I	
		3=450-700AD/Basketmaker III	
		4= /Layer A	
		5=Indian time	
		6=Other time periods	
		7=no time period given/ not codeable	1=1; 2-7=0

(Pueblo People of the Past (cont.) Scoring

Col. 35 --3B. Reason for time period

1=Kiva present

2=

3=pottery making began

4=studying the way they lived

5=paintings on the pottery/ way pottery was made/

6=pueblo house present

7=no reason given/not codeable 1=1; 2-7=0

Col. 36 --3C. Evidence

1=lots of pottery

2=

3=lots of pottery and artifacts

4=

5=

6=seeds found there were (are) still in use

7=no evidence given/not codeable 1=1; 2-7=0

Sun Watch **Scoring**

Col. 37 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 3=1; 1, 2, 4, 5, 6=0

Col. 38 --2. (same as 1) — 4=1; 1, 2, 3, 5, 6=0

Col. 39 --3A. [Essay] Difficulty

1=sun is bright/rays harmful to eyes/can cause blindness/can't look directly at sun

2=looking at sun does something to eyes

3=they move; change rapidly

4=so far away

5=difficult way of knowing the sun/have to test/don't know what they are/

6=we are rotating--hard to get same picture

7=none state/not codeable — 1=2; 2=1; 3-7=0

Col. 40 --3B. How have difficulties been overcome?

1=made filters/screws/dark lenses

2=special instruments/special glasses/telescopes/cameras/take pictures/modern tools

3=they've changed ideas & have come up with different observations/they use calculations/have different techniques/do different tests

4=grids and graphs

5=made machines /high-powered equipment/satellites

6=by observing the sun/view sun at night/see them in the sky

7=none stated/not codeable — 1=2; 2=1; 3-7=0

The Solar Merry-Go-Round   Scoring

Col. 41 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6   4=1; 1, 2, 3, 5, 6=0

Col. 42 --2. (same as 1)   4=1; 1, 2, 3, 5, 6=0

Col. 43 --3A. [Essay] What would you do?

1=test each model

2=see if they make sense/see if it was logical/see if it works

3=see if they were (both) true

4=

5=

6=

7=no response/not codeable

Col. 44 --3B. [Essay] Next step

1=compare models under the same conditions/test under different conditions to see which is more accurate/

2=experiment/try them out/see how they work/compare/

3=read more books

4=

5=

6=

7=no response/not codeable

The Star Gazers **Scoring**

Col. 45 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 1=1; 2-6=0

Col. 46 --2. (same as 1) — 2=1; 1,3-6=0

Col. 47 --3A. [Essay] Ancient beliefs about Leo - Similarities

1=lions have special (mightier) powers/ list 2 of 3 cultures, Leo has powers to destroy/Leo is a god

2=Leo had something to do with death and destruction/hot summers/heat and fire

3=made animals die and crops burn/had something to do with the weather

4=lions were ferocious/deadly/dangerous

5=they came from the sky

6=Leo was expressed as half lion, half human

7=no response to "similar"/ not codeable — 1, 2=1; 3-7=0

Col. 48 --3B. [Essay] Ancient beliefs about Leo - Differences

1=any 2 of the 3:

Sumerians - Leo has power to burn crops and destroy animals/was evil

Greeks - Leo fell from moon/formed into constellation/was evil

Egyptians - Leo responsible for heat and water in summer/Nile floods and parching land/was good

2=only 1 comment: Leo brought floods in hot summer

3=comparison not identified, but two correct statements (as in #1)

4=comparison partly correct

5=

6=reiteration: viewed Leo in different ways/ had different explanations

7=no responses to differences/ not codeable — 1=2; 2,3=1; 4-7=0

What Do the Stars Know?			Scoring
Col. 49	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	4=1; 1, 2, 3, 5, 6=0
Col. 50	--2.	(same as 1)	3=1; 1, 2, 4-6=0
Col. 51	--3.	[Essay] Explain the difference.	
		1=they are two different ways of knowing/ Nancy is judging astrology as a science. It is not a science but some people find it satisfying/Astronomy and astrology serve different purposes. Astrology serves purposes for some people/There is no scientific proof that stars and planets influence human lives so people who use science as a measure say astrology is hocus pocus/people have different ways of knowing	
		2=Nancy may have shut her mind to it/ not interested	
		3=John got his guesses right as he believes in astrology, but Nancy didn't, so she doesn't/John took more time, Nancy rushed through/John had lucky guesses	
		4=incorrect use of astronomy or astrology	
		5=they had different interpretations (reiteration)/different evidence	
		6=	
		7=no response/not codeable	1=1; 2-7=0

Human Ideas About Disease   Scoring

Col. 52 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6   4=1; 1, 2, 3, 5, 6=0

Col. 53 --2. (same as 1)   2=1; 1, 3, 4, 5, 6=0

Col. 54 --3A. [Essay] Beliefs of Arunta, Navajo, or Hawaiians

Arunta. They believe that disease is caused by magic, that there are no natural causes for disease/they use a magic stone/medicine man gets power from spirits to cure

Navajo. They believe that disease is an upset in the harmony of the universe. This upset can be caused by ghosts, witches, by breaking rules and by enemy contact with certain things.

Hawaiians. Disease was brought into the Hawaiian Islands by spirit people. It was cured by Kamaka and Lonopuka who was taught by Kamaka how to use plants and herbs.

1=A, N, or H useful, accurately described

2=A, N, or H, worthless, accurately described

3=general positive: it is not worthless, let them do it their own way/they might think the same about us/its what they believed

4=A, N, or H, accurate, no comment on worth

5=ask her why she thinks it is worthless/you are not correct/

6=general negative: Hawaiians because it never worked

7=no response/not codeable

Col 55 --3B. [Essay] Reasons

1=they believe what the shaman can do

2=belief plus psychological benefit

3=they all worked/they sometimes work

4=

5=

6=

7=no reasons/not codeable

300

Farther and Faster			**Scoring**
Col. 56	--1.	1=accurate plot, graph labeled	1=2; 2=1; 3-7=0
		2=accurate plot, no labels, incomplete labels	
		3=some points inaccurate, labeled	
		4=some points inaccurate, not labeled	
		5=all points inaccurate, not labeled	
		6=axes reversed, accurate plot, not labeled	
		7=no response	
Col. 57	--2.	trend line	1=2; 2=1; 3-7=0
		1=trend line at best fit	
		2=trend line off, but same general direction/curved	
		3=trend line has wrong direction for data (more than 30° off)	
		4=line graph made but no separate trend line	
		5=	
		6=	
		7=no trend line/points are not plotted, questionable trend line	
Col. 58	--3.	1=10.50 to 10.75	1=1; 2-7=0
		2=10.76 to 11.00	
		3=11.01 to 11.25	
		4=11.26 to 11.50	
		5=over 11.51	
		6=under 10.49	
		7=no response	

Levers of the Body **Scoring**

Col. 59 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 2=1; 1, 3-6=0

Col. 60 --2. 1=all 5 correct — 1=2; 2, 3=1; 4-6=0

2=4 of 5 correct

3=3 of 5 correct

4=2 of 5 correct

5=1 of 5 correct

6=0 correct

7=no response

Name of Joint	Kind of Motion	Kind of Joint
Shoulder/hip		Ball & Socket
Wrist/ankle/ neck		
	Back & Forth	Hinge/

Col. 61 --3. Drawing--terms: force, load, fulcrum — 1=5; 2, 3=3; 4=1; 5-7=0

1=Drawing with all three terms explained accurately

2=Drawing with 2 of terms explained accurately

3=Drawing with one of terms explained accurately

4=Drawing with force, fulcrum and load accurate as labels, no explanation

5=

6=Drawing recognizeable, no labels

7=no response/drawing not comprehensible

Hot Spit			Scoring
Col. 62	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	3=1; 1, 2, 4-6=0
Col. 63	--2.	(same as 1)	2=1; 1,3-6=0
Col. 64	--3A.	[Essay] Differences, cracker in box--cracker in stomach	1=3; 2=2; 3=1; 4-7=0
		1=cracker in box has starch, cracker in stomach has (is) sugar/box has starch, stomach less starch/box has more starch/starch came out of the cracker	
		2=cracker in stomach is dissolved	
		3=wet/chewed up/dry/soft	
		4=	
		5=	
		6=	
		7=no response	
Col. 65	--3B.	[Essay] How do you know?	1,2=2
		1=I experimented and found.../ report of experiment/	
		2=digestion, cracker changed from starch to sugar	
		3=	
		4=	
		5=	
		6=you can taste it/when you chew it up it's soggy	
		7=no response to "How do you know?"/not codeable	

Knowing About the Brain

Scoring

Col. 66 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 1=1; 2-6=0

Col. 67 --2. (same as 1)

Col. 68 --3. [Essay] Why was Gage so important? — 1=2; 2=1; 4-7=0

1=he lived after part of his brain was destroyed and doctors could study changes in his behavior

2=he lived after the accident/ didn't kill him/had side effects

3=

4=doctors studied his brain/ lead people to understand the brain

5=proved brain had protection/ can function with part destroyed/

6=helped them think more/ need to know evidence/

7=no response/don't know/ not codeable

A Way of Seeing Inside the Human Body

Col. 69 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 1=1; 2-6=0

Col. 70 --2. (same as 1) — 3=1; 1, 2, 4-6=0

Col. 71 --3A. [Essay] What would you say?

1=he's wrong/they would

2=he's right/they won't

3=go look at an x-ray

4=we saw the stomach

5=

6=

7=no response

Col. 72 --3B. [Essay] What evidence Scoring

1=soft parts show dimly/a dye can be used to make the stomach show up

2=

3=example of hard, non-body part showing up, i.e. coin/

4=the x-ray passes through the body/x-ray shows bones and organs

5=anything solid will show up

6=x-rays I saw

7=no response/not codeable no evidence

Building with Bricks

Col. 73 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 3=1; 1, 2, 4-6=0

Col. 74 --2. (same as 1) 1=1; 2-6=0

Col. 75 --3A. [Essay] All brick columns have same strength 1=2; 2=1; 3-7=0

1=arch is stronger than lintel/

2=all brick columns do not have same strength/does make a difference/an arch will hold more pressure/arch is stronger

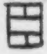
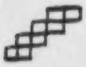
3=

4=you're (he's) wrong/no/not true/

5=

6=

7=no comment on relative strength/no response

Col. 76 --3B. [Essay] Describe experiment	Scoring
1=build a post and lintel and an arch and put weight on top	1=3; 2-3=2; 4=1; 5-7=0
2=	
3=comparison: make an arch and a lintel/two columns and one column/	
4=no comparison: drawing of a patterned column ()/ () won't hold/straight column without support will fall/look at a dam/how many can be stacked	
5=	
6=	
7=no response/not codeable/ no experiment described	

Col. 79-80--KNOWING Card 1, Problems to Solve=20

CODING PROTOCOLS

KNOWING--Activity Problems to Solve

Card 2

Col. 1-10--Student Identification number

Foiled Again Scoring

Col. 11 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 2=1; 1, 3-6=0

Col. 12 --2. (Essay) Why was it important to have the blocks exactly 15 cm apart?

1=so you can compare them/ — 1=3; 2=2; 3,4=1; 5-7=0

2=so it will be fair/to have a controlled experiment

3=if blocks were close, bridge would be stronger, far apart makes it weaker/the farther apart the blocks the less they will hold/there is less area to get pulled down when they are close together/to hold the bridge up

4=because of the weight on the foil/ a longer or shorter space will affect the weight

5=irrelevant: the balance would not be accurate/so it will be level

6=it might not work as well/wouldn't work out right/

7=no response/not codeable/unintelligible/ don't know

Col. 13 --3. (Essay) Draw pictures of bridge. Show as many views as needed so a bridge could be made from your drawing.

1=3 views, top, side, end/several views (3 or more) showing detail

2=2 views

3=one side view, detailed

4=one view, perspective

5=one side view, simple — 1=2; 2-5=1; 6-7=0

6=non-foil bridge (toothpick, wood, etc.)

7=no drawing(s)/ unintelligible drawings

Materials in Space Scoring

Col. 14 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 3=1; 1, 2, 4-6=0

Col. 15 --2A. (Essay) What did you like about the material?

1=soft/flexible/stretchy/

2=easy to use/easy to work with/comfortable to work with/

3=

4=can correct errors

5=soft and easy to use(work with) (1 &2)

6=didn't like it/could have been better

7=no response to liking/ 1-6=1; 7=0

Col. 16 --2B. (Essay) What does it mean to you?

1=freedom

2=flight

3=rain

4=peace/tranquility/hope/happiness/

5=flight and freedom

6=friendship

7=no response to meaning/ not codeable 1-6=1; 7=0

Col. 17 --3. (Essay) Why particular sculpture favorite

1= :colors/action/expression/interest

2=craftsmanship: detail/smoothness/relief

3=feelings of people: freedom/caring/love/ passion/

4=realism

5=modern/up-to-date/unique

6=because it was a great sculpture/it was the best/

7=no response/not codeable/unintelligible/ no reason

1-5=3; 6=1; 7=0

Building Materials: How Good Are They? Scoring

Col. 18 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 2=1; 1, 3-6=0

Col. 19 --2. (same as 1) 3=1; 1, 2, 4-6=0

Col. 20 --3. (Essay) Criteria for choosing building materials

1=includes economic, physical and aesthetic(a personal preference)

2=economic and physical/physical and aesthetic/aesthetic and economic

3=physical only

4=economic only

5=aesthetic only

6=

7=no response/not codeable 1=3; 2=2; 3-5=1; 6-7=0

Images of Brush and Pen

Col. 21 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 2=1; 1, 3-6=0

Col. 22 --2. (Essay) What did you learn

1=others are like me:they write poems/play with toys

2=others have feelings: serious/lonely/ sad/interests/enjoying/

3=how others live

4=others work: they draw lots of pictures/

5=different people like different things

6=

7=no response to question/

How Old Are They?

Col. 23 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 3=1; 1, 2, 4-6=0

Col. 24 --2. (Essay) One characteristic to determine age

1=wrinkles/skin/smoothness

2=voice

3=face/hands/other body parts/hair

4=

(How Old Are They?) **Scoring**

5=more than one given, no preference

6=their shape/size/

7=no response to characteristic 1, 2=2; 3, 4=1; 5-7=0

The Unknown Millions

Col. 25 -- 1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 4=1; 1-3, 5-6=0

Col. 26 -- 2. (Same as 1) 2=1; 1, 3-6=0

Col. 27 -- 3. (Essay) What could he say

1=general: old people are not all the same/

plus example: I read about old people who were nice/I know old people who aren't like that/

2=general: old people are not all the same/interested in things as young people/

3=specific: old people are not crabby/might be crabby because they hurt

4=particular: he was wrong about his grandmother/

5=

6=people tend to go along or agree with friends' feelings

7=no response/not codeable/ unintelligible

Vital Statistics

		Scoring
Col. 28 -- 1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	1=1; 2-6=0
Col. 29 -- 2.	(Same as 1)	2=1; 1, 3-6=0
Col. 30 -- 3.	(Same as 1)	4=1; 1-3, 5-6=0
Col. 31 -- 4.	(Essay) Use of newspaper vital statistics 1=both questions answered: how many wins, (number source)/ infant mortality rate in France (number, source)/ 2=one question answered: how many wins/infant mortality rate/death rate in_____/ 3=compared number of births of boys and girls 4= 5= 6=not intelligible: the most population rate/ 7=no response/not codeable	1=2; 2 =1;

The Very Difference Ones

Col. 32 -- 1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	2=1; 1, 3-6=0
Col. 33 -- 2.	(Same as 1)	1=1; 2-6=0
Col. 34 -- 3.	(Same as 1)	2=1; 1, 3-6=0

The Very Different Ones (cont.) **Scoring**

Col. 35 -- 4. (Essay) In what ways — 1-3; 2-4=2; 5-7=0

1=**Wagner**: posed theories outside his science field or ideas not accepted/**Kepler**: believed in astrology or searched for religious harmony in star movement/**Semmelweiss**: fought for his ideas, never gave up,

2=report of what he did

3=report of his findings/his theories/his beliefs/his observations

4=personal characteristics/ schooling/a genius, smart/

5=

6=

7=no response/not codeable

Surveys, Samples and Schools

Col. 36 -- 1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	4=1; 1, 2, 3, 5, 6=0
Col. 37 -- 2.	(Same as 1)	1=1; 2-6=0
Col. 38 -- 3.	(Essay) Why select randomly	1=3; 3-4=2; 2=1; 5-7=0

1=to general to more people than you questioned/

2=because people you don't know are more honest/people you know will agree with you/

3=family and friends may share the same opinion/to get different answers/get everyone's opinion

Surveys, Samples and Schools (cont.) **Scoring**

4=because then you have most of the population/

5=

6=because you can find out about different people/

7=no response/not codeable/

Col. 39 -- 4. (Essay) Why test? 1=3; 2 =1, 7=0

1=any one of the following (a) to find out if people interpret a question differently, (b) to see if more than one question gives the same information (c) to see if you get the information you want

2=to make sure it works

3=

4=

5=

6=

7=no response/not codeable

Size Wise

Col. 40 -- 1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 3=1; 1-2, 4-6=0

Size Wise (cont.) **Scoring**

Col. 41 -- 2. (Make a histogram from data) 1=3; 2=2; 3=1; 4-7=0

1=histogram accurate, both axes accurate, both axes labled.

2=histogram accurate, both axes accurate, no labels

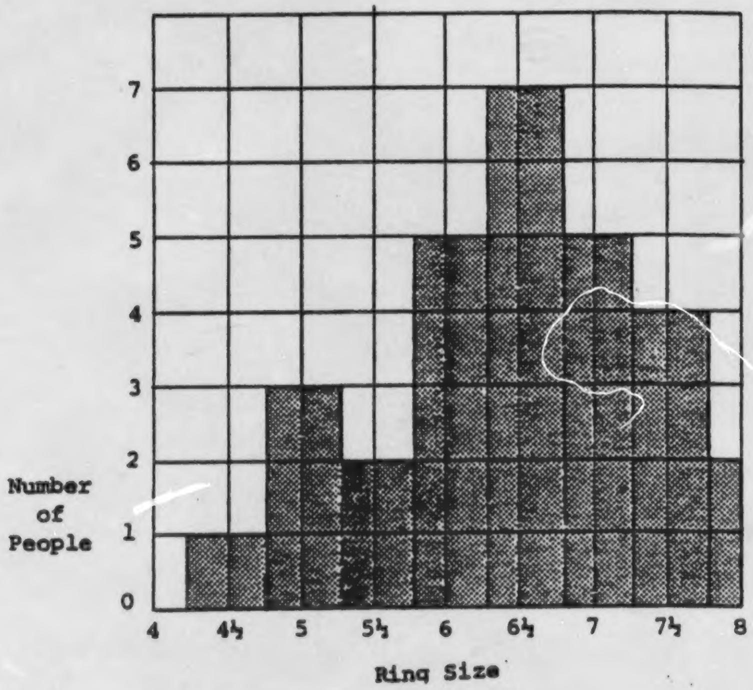
3=histogram accurate, one axis accurate, no label/ one label

4=

5=histogram inaccurate

6=number recorded in graph space

7=no graph made/not codeable



Size Wise (cont.) **Scoring**

Col. 42 -- 3. (Essay) 1=3; 4, 5, 6=1; 2-3=1; 7=0

1=like the ring size histogram/ a range, some centered on several sizes

2=everyone different/

3=everyone (about) the same

4=a variety (a few more frequent, often)/boys bigger sizes-girls smaller

5=specifies date like a histogram

6=different sizes, based on relation of hat and ring size

7=no response/not codeable

Knowing Yourself

Col. 43 -- 1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 a=1; 2-6=0

Col. 44 -- 2. (Same as 1) 2=1; 1, 3-6=0

Col. 45 -- 3. (Essay) 1-5=1 7=0

1=Specific: learned I value thing I have/learned I'd rather spend time with someone different/don't need a lot of money

2=general: who and what I like most/some of my values

3=how I value things/

4=to know myself better/self values more important/

5=people value different things

6=some people like the same things I do

7=no response/not codeable

A Martian Test		Scoring
Col. 46 -- 1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	2=1; 1, 3-6=0
Col. 47 -- 2.	(Same as 1)	2=1; 1, 3-6=0
Col. 48 -- 3.	(Essay) Most accurate source of information on Mars 1=TV and newspapers 2=TV (but not other persons or newspapers) 3=newspapers (but not other persons or TV 4=other persons (with other items except both TV and newspapers) 5=TV and news magazines (and others, but not newspapers) 6=irrelevant: tell what they have seen or heard/they read books/information 7=no response/not codeable	1-5 =1, 6,7=0

Martian Tales			**Scoring**
Col. 49	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 (Do not code response 2) Please save the answer sheets, file with the activity in the master (number coded) file.	2=1; 1, 3-6=0

Four Views of Mars

Col. 50	--1.	a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6	2=1; 1, 3-6=0
Col. 51	--2	(same as 1)	4=1; 1-3, 5, 6=0
Col. 52	--3.	1= score 3 or more	

2=score 2

3=score 1

4=score 0

5=general comment: better idea/ more than telescope showed

6=same/same facts/

7=no response/irrelevant

Scoring: one point for each correct item, subtract 1 point each incorrect item:

Viking-correct (1 point each)

more about surface/terrain

atmosphere/soil color/soil

texture/detail/information/

soil samples/knowledge/sandy/

dry, rocky/similar (same) information/

temperature/

Telescopes-correct (1 point each)

more about rotation/

only the color (no texture)

outer surface

see the seas

red

Viking-incorrect (subtract 1 point each)

red

more important

Telescopes-incorrect (subtract 1 point each)

atmosphere

Scoring

more important 1=3; 2=2; 3, 5, 6=1; 4, 7=0

Moving Words

Col. 53 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 2=1; 1, 3-6=0

Col. 54 --2. (Essay) What features did you use to make groups? (1st question only)

1=subdivisions of a theme: motion, animal, people, inanimate/

2=dichotymous groups: like-dislike/understand-not understand/action-choppy sentences/best-other/

3=several groups, no theme

4=general statement, action not clearly distinguished

5=single theme, no subgroups mentioned

6=irrelevant/don't know what groups are/you can group them

7=no response/unintelligible 1=3; 2=2; 3-5=1; 6-7=0

(Do not code #3 or #4 on back page)

Dancing Motion

Col. 55 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 3=1; 1, 2, 4-6=0

Col. 56 --2. (Essay)

1=fear, intelligible and fits

2=fear, not intelligible/doesn't fit

3=intelligence, intelligible, fits

Scoring

4=intelligence, doesn't fit/unintelligible *

5=power, intelligible, fits

6=power, doesn't fit/unintelligible

7=no response/not codeable   1, 3, 5=2; 2, 4, 6=1; 7=0

Col. 57 --3. a. 3 because fingers point out from the eyes.

b. 2 because fists are clenched and moving.

c. 5 because hands are as if they were holding something.

d. 6 because fingers are like horns.

(Note: There could be other choices with plausible reasons.)

1=4 correct, all reasons plausible

2=3 correct, 3-4 reasons plausible

3=2 correct, 2 reasons plausible

4=1 correct, 1 reason plausible

5=

6=

7=no response/not codeable   1, 2=2; 3-4=1; 5-7=0

Vibes

Col. 58 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6   1=1; 2-6=0

Col. 59 --2. (same as 1)   3=1; 1, 2, 4-6=0

Col. 60 --3. (Essay) If load increases, effects on frequency, amplitude and period.

1=frequency-slower/less/

amplitude-greater/more/increase

period-longer

2=any two of the above

3=any one of the above

4=general statement: would take more time to vibrate/

5=be the same

6=

7=no response/unintelligible   1=3; 2=2; 3=1; 4-7=0

Rolling Along

Col. 61 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6   3=1; 1, 2, 4-6=0

Col. 62 --2. (same as 1)   3=1; 1, 2, 4-6=0

Col. 63 --3. (Essay)

1=increase the weight of the car/tighten the wheels/change gears

2=stretch or slacken the track

3=give it a push

4=make a bridge

5=change the starting point

6=take off weight

7=no response/not codeable   1=2; 2-7=0

Heavenly Motion

Col. 64 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6   2=1; 1, 3-6=0

Col. 65 --2. (same as 1)   1=1; 2-6=0

Col. 66 --3. (Essay) How to calculate the area of the triangle

1=place over graph paper, count full squares, count and estimate half squares, add/ make a parallelogram, divide by 2/ draw the other half of the triangle, measure and multiply sides, divide by 2/base x altitude x 1/2

2=put it on a grid and count the number of squares you see/make it into a square or rectangle, count squares x 1/2

3=multiply 3 sides

4=add all sides together

5=calculate the triangle and work it out/

6=irrelevant/general statement/just like it is/

7=no response/not codeable   1=2; 2-7=0

Magic Motion — Scoring

Col. 67 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 3=1; 1, 2, 4-6=0

Col. 68 --2. (same as 1) (Do not code problem 3) — 3=1; 1, 2, 4-6=0

The Rainmakers

Col. 69 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 2=1; 1, 3-6=0

Col. 70 --2. (same as 1) — 3, 4=1; 1, 2, 5, 6=0

Col. 71 --3. (Essay) Hopi (H) and Arunta (A) compared to scientific rainmaking.

1=similar: neither is very good at making rain/doesn't work well/shame if it doesn't work

different: use dance/ritual/spirits/chants

2=not similar
different: scientists use chemicals/H and A use rituals/dance/religion/costumes

3=

4=general statement, comparison not clear

5=both used chemicals/scientists use scientific methods, indians didn't/scientists modern equipment, indians rituals (spirits, etc.)

6=both use same method
different (variable)

7=no response/same as #5, Part II/not codeable

1=3; 2=1; 3-7=0

Weather Music

Col. 72 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 — 3=1; 1, 2, 4-6=0

(Do not code problem 2 or 3)

The Weather According to Granny Oakes **Scoring**

Col. 73 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 1=1; 2-6=0

(Do not code problems 2 or 3)

Do Dew Drops Drop?

Col. 74 --1. a=1, b=2, c=3, d=4, blank=5, multiple marks/illegible=6 1=1; 2-6=0

Col. 75 --2. (same as 1) 2=1; 1, 3-6=0

Col. 76 --3A. (Essay) Where does dew on grass come from?

1=from the air/sky

2=from the ground

3=from the air and ground

4=forms during condensation

5=

6=temperatures given/temperature

7=no response 1=1; 2-7=0

Col. 77 --3B. (Essay) Reason (How do you know)

1=the grass is cooler than the air and moisture condenses on grass

2=moisture condenses and settles on ground

3=

4=

5=

6=wrong reason: if it came from the earth it wouldn't get on cars/

7=no reason given/I worked it out/

(Do not code problem 4)

The Storm — **Scoring**

Col. 78 --1. (Essay) Problems in warning people about weather

1=people: might not believe forecast and weather hard to predict

2=people panic/get confused/ hard to warn people/they won't listen

3=it is hard to predict weather: accurately/in advance

4=have to tell people where shelter is/ tell them how to prepare: store food, tape windows/
5=people should listen to other people

6=irrelevant

7=no response/not codeable — 1=3; 2,3=1; 4-7=0

Col. 79 --2. a=1, b=2, c=3, d=4, blank=5 multiple marks/illegible=6 — 3=1; 1, 2, 4-6=0

Col. 80 --3. (same as 1) — 4=1; 1-3, 5, 6=0

BSCS Human Sciences Program
KNOWING Module

POST-TESTING INSTRUCTIONS

Post-tests: One-half of your students will take the KNOWING Post-test. The other half will take the Science Questionnaire.

Packing: One copy of the KNOWING Post-test will alternate with one copy of the Science Questionnaire. This is to facilitate distribution to students.

Administration: Be sure students have pencils or pens. They should work independently. Please try to establish a purposeful atmosphere. Students should know that what they are doing is important--to you as well as to the project.

In order to randomize their distribution, start at a different corner of the room than you used in handing out the pre-test materials. Proceed in a different direction. Give the top paper to each student as you come to him or her. Some students who received the KNOWING Pre-test will also get a KNOWING Post-test; others will not. This is as planned.

The Science Questionnaire has a box for the students name, school, teacher and date. The same information should be put on the KNOWING Post-test, but the box is not printed there.

Let students read the directions of their respective tests. Ask if there are any questions. Interpret directions, but do not interpret questions.

During the test period please walk around the room to see how students are doing.

Neither the Science Questionnaire nor the KNOWING Post-test are timed tests. Give students all the time they need to respond to each instrument.

Disposition: Please use the same package the materials were shipped in to return them to BSCS. Please return both used and unused booklets. A return address sticker is provided in each box for readdressing to us. You will be reimbursed for postage from the shipping cost indicated on the returned package.

JTR:lls
5/17/77

KNOWING
LEVEL III

KNOWING POST-TEST

This is a special test to accompany the KNOWING module of the Human Sciences Program. Please read the instructions for each group of items carefully and then mark your responses as directed. Try to answer each question, but if you don't understand it, leave it blank.

SECTION I

Consider each statement carefully and determine if you agree with the statement or disagree with the statement. Circle the word of your choice.

A. The Bleeps were eating their dinner under a Squalch on the planet Minos when the space craft landed with a thud in the large crater below. The leader of the Bleeps ordered an immediate silence and organized a scouting squad to go to the edge of the crater and watch the space craft. They were instructed to radio their observations back to command headquarters. This would allow an evacuation of the Maude Valley if the space craft contained Bleep enemies. The leader radioed back:

> ..."Captain the door just opened and some very small creatures have emerged. They are shiny looking and have a clear round object on their top. They have only two legs but have two other funny looking things hanging from near their top."
>
> ..."One of them just kicked some rocks with its leg and used one of those funny things hanging from near its top to move a larger rock. They move very slowly and if we had to defend ourselves we could easily move faster than they do. Since they have only two legs I think they would be easy to knock over."

Circle One

Agree Disagree 1. The leader was careful to radio observations, not inferences, back to command headquarters.

Agree Disagree 2. Such an event could occur on a different planet sometime in the future.

Circle One

Agree Disagree 3. Bleeps make inferences from observations in a different way than we do.

B. The next group of questions do not relate to the story above. Again, circle whether you agree or disagree with the statement.

Circle One

Agree Disagree 4. Primitive tribes and other people without science have few useful ways of knowing.

Agree Disagree 5. Since prehistoric cultures left no written account of their activities, it is impossible to know anything about them.

Agree Disagree 6. We have completed learning what there is to know about Mars through the Viking space expeditions.

Agree Disagree 7. Scientific knowledge is more personal than is poetry.

C. Archaeologists could use the following to find out about a particular group of prehistoric people:

Circle One

Agree Disagree 8. Locate a site where the people lived and excavate it carefully.

Agree Disagree 9. Compare the artifacts found at the site with similar ones found elsewhere.

Agree Disagree 10. Analyze carefully the artifacts found at the site.

D. Read each statement. Circle the word agree or disagree to indicate how you feel about the statement.

Circle One

Agree Disagree 11. Both geologists and archaeologists assume, when they dig into layers in the earth, that the bottom layer is usually the oldest.

Circle One

Agree Disagree 12. If you had seven books that cost a total of $35.00, one book would have an average cost of $5.00.

Agree Disagree 13. Both medical doctors and medicine men (shamans) know that if their patients trust them to be of help treatment will be more effective.

Agree Disagree 14. All locations in the United States are north latitude.

Agree Disagree 15. The condensation of water in nature is caused by cooling, in the laboratory it can be caused by changes in air pressure.

Agree Disagree 16. The age of the earth can be predicted by using the methods of science.

Agree Disagree 17. It takes astronomers viewing the sun from earth a full year to see the whole surface of the sun.

Agree Disagree 18. Fossils can be used as sources of information about the kinds of environments that existed millions of years ago.

Agree Disagree 19. New developments in science are quickly accepted by scientists.

Agree Disagree 20. There are chemicals that change color when another particular chemical is present or absent.

Agree Disagree 21. A myth is an incorrect belief.

E. If you were interested in knowing about the past which of the following would be useful?

Circle One

Agree Disagree 22. Using stratigraphic procedures in studying formations of the earth and prehistoric settlements.

Agree Disagree 23. Translating writing systems of past culture.

Circle One

Agree Disagree 24. Excavating burial sites of early civilizations.

Agree Disagree 25. Using radioactive carbon dating to approximate the age of materials.

Agree Disagree 26. Talking with older persons to learn of their experiences.

Agree Disagree 27. Using personal letters written by individuals to learn about their lives.

Agree Disagree 28. Studying tools left by earlier civilizations in order to infer their use.

Agree Disagree 29. Locating fossils, reconstructing and restoring them.

F. Questions 30 through 35 relate to this story. Two students that live near some mountains had the following conversation:

Mary: I climbed to the top of my first mountain this past weekend. I don't think anyone really knows what a mountain is like until they stand on top of one.

Sue: I have never been on top of a mountain, but I think I know what it is like.

Mary: How could you?

Sue: I have seen a lot of pictures taken from the tops of mountains and the other night I saw a movie about two mountain climbers. I got scared just watching the movie!

Mary: Well that cannot compare with really being there.

Circle One

Agree Disagree 30. Mary is right. You can't know about a mountain from movies or pictures.

Agree Disagree 31. Mary and Sue are both right. They both know about mountains but in different ways.

Agree Disagree 32. Just because Mary was on top of one mountain doesn't mean that she knows what it means to be on top of other mountains.

Circle One

Agree Disagree 33. The only way a person can know about a mountain is by climbing one.

Agree Disagree 34. A person can know something about a mountain from a film that you could not know from being on top of one.

Agree Disagree 35. Mary and Sue could both know more about mountains if they would read a good book about mountains.

SECTION II

In Section II consider each question carefully and circle the letter of the one best answer for the question.

G. An astrologer and an astronomer were both asked the question, "Do you think stars influence people's personalities?"

The astronomer said, "No. They are simply masses of material in our universe that have certain known chemical and physical properties."

The astrologer said, "They have a great deal of influence. Their position at the time of our birth influences our life pattern. These patterns are very predictable."

36. The reason astrologers and astronomers can have such different views of the same thing is
    - a. they try purposefully to be different.
    - b. there is more than one way of knowing about something.
    - c. their intelligence may be very different.
    - d. they don't talk to each other very often.

37. Astrology is different from astronomy because in astrology
    - a. the position of heavenly bodies is studied.
    - b. the influence of constellations on human beings is considered.
    - c. the major constellations of the Zodiac are studied.
    - d. predictions of future events about heavenly bodies are made.

38. What would be the best way to describe the positions of the astrologer and astronomer?

   a. The astronomer is right and the astrologer is wrong.
   b. The astrologer is right and the astronomer is wrong.
   c. They each have their own way of knowing and there are people that would have use for each way.
   d. They both have the same way of knowing but have not talked to each other enough to know it.

H. Questions 41 and 43 refer to the "Bleeps" story. Refer back to page 1 before answering these two questions.

39. The best way to know about the amount of rainfall in your city would be to

   a. read a poem about rainfall.
   b. listen to a symphony related to rainfall.
   c. talk to a meteorologist in your city.
   d. make rain in a flask in your laboratory.

40. The best way to learn what the students in your school think about how well the President is doing his job would be to

   a. draw the names of 100 students from a jar containing every student's name in your school and interview them.
   b. interview 300 students in the lunchroom.
   c. interview all 8th grade social studies classes.
   d. interview the first 100 boys and the first 100 girls who walked into the front door of the school on a particular day.

41. Which is an inference in the story of the Bleeps?

   a. "Some very small creatures"
   b. "They are shiny looking"
   c. "They have only two legs"
   d. "They would be easy to knock over"

42. Which would be the best way to find out about the problems facing persons over age 65 in your community?

   a. Talk to your 72-year-old neighbor.
   b. Interview an administrator of a senior citizen volunteer program.
   c. Read a book about aging in America.
   d. Develop and test a questionnaire that you administer to a random sample of all persons in your community over 65.

43. What does the captain in the story of the Bleeps know about the things from the spaceship?

    a. The creatures are going to stay.

    b. The creatures are not like the Bleeps.

    c. The creatures are from the other side of the planet.

    d. The creatures are friendly.

44. After studying a unit in your science class, how would you best describe what the students in your class will know?

    a. They will know the same things.

    b. There will be some things most will know and other things that each student will know.

    c. Every student will know different things.

    d. They will know almost everything there is to know about the subject of the unit.

KEY

KNOWING POST-TEST

Column	Item	Correct
11	1	2
12	2	1
13	3	2
14	4	2
15	5	2
16	6	2
17	7	2
18	8	1
19	9	1
20	10	1
21	11	1
22	12	1
23	13	1
24	14	1
25	15	1
26	16	1
27	17	2
28	18	1
29	19	2
30	20	1
31	21	2
32	22	1
33	23	1
34	24	1
35	25	1

Column	Item	Correct
36	26	1
37	27	1
38	28	1
39	29	1
40	30	2
41	31	1
42	32	1
43	33	2
44	34	1
45	35	1
↕		
52	36	2
53	37	2
54	38	3
55	39	3
56	40	1
57	41	4
58	42	4
59	43	2
60	44	2

LERTAP

*Key 21222 22111 11111 12121 21111 11112 11211

*Key 22331 4422

Human Sciences Program

Name ______________________________

Teacher ___________________________

School ____________________________

Date ______________________________

Science Questionnaire

This questionnaire will make your thinking and opinions a part of the information of the BSCS Human Sciences Program. You are asked to participate because Human Sciences has been tested in your school.

Please list the courses you have been taking this year, 1976-77. List BSCS Human Sciences separately from your regular science course. After you have listed all the courses, put a 1 in the right-hand column opposite the best course you have had this year. Then put a 2, for the next best course, and so on, until each course has a number. This is called "Rank-Order" from best to next-best. It does not mean you liked any course, or disliked any course. It just shows how you rate them compared to each other.

Course Title	Rank Order (1-10)
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________
________________________________	____________

On the next two pages you will get a chance to express how you feel about Human Sciences and the regular science course you have been in this year. You will find pairs of words and lists of numbers like:

good 3 2 1 0 1 2 3 bad

You would circle the number between good and bad that best tells how you feel. Here is an example.

Chocolate
good 3 2 1 0 1 2 3 bad

If you really love chocolate, you would circle 3, next to good. If you hate chocolate, you would circle 3, next to bad. Circling 0 would show you can take it or leave it, you don't like or dislike chocolate. Circling 1 toward good is a mild feeling toward good. Circling 1 toward bad is a mild feeling toward bad. Circling 2 would indicate a moderate feeling. Circling 3 would indicate a strong feeling.

There are no correct or incorrect answers. Some pairs of words may not make as much sense as others. Don't worry, circle the number that best expresses your feelings.

Expressing Feelings

Circle the number that expresses how strongly you feel about:

Human Sciences

good	3	2	1	0	1	2	3	bad
close	3	2	1	0	1	2	3	distant
not active	3	2	1	0	1	2	3	active
full	3	2	1	0	1	2	3	empty
worthless	3	2	1	0	1	2	3	valuable
pleasant	3	2	1	0	1	2	3	unpleasant
slow	3	2	1	0	1	2	3	fast
useful	3	2	1	0	1	2	3	useless
interesting	3	2	1	0	1	2	3	boring
still	3	2	1	0	1	2	3	moving
sad	3	2	1	0	1	2	3	happy
not important	3	2	1	0	1	2	3	important
nice	3	2	1	0	1	2	3	awful
fair	3	2	1	0	1	2	3	unfair
dull	3	2	1	0	1	2	3	exciting
tired	3	2	1	0	1	2	3	lively
listening	3	2	1	0	1	2	3	doing
never fun	3	2	1	0	1	2	3	always fun

Circle the number that expresses how strongly you feel about:

Your Regular Science Course
(before you started KNOWING)

good	3	2	1	0	1	2	3	bad
close	3	2	1	0	1	2	3	distant
not active	3	2	1	0	1	2	3	active
full	3	2	1	0	1	2	3	empty
worthless	3	2	1	0	1	2	3	valuable
pleasant	3	2	1	0	1	2	3	unpleasant
slow	3	2	1	0	1	2	3	fast
useful	3	2	1	0	1	2	3	useless
interesting	3	2	1	0	1	2	3	boring
still	3	2	1	0	1	2	3	moving
sad	3	2	1	0	1	2	3	happy
not important	3	2	1	0	1	2	3	important
nice	3	2	1	0	1	2	3	awful
fair	3	2	1	0	1	2	3	unfair
dull	3	2	1	0	1	2	3	exciting
tired	3	2	1	0	1	2	3	lively
listening	3	2	1	0	1	2	3	doing
never fun	3	2	1	0	1	2	3	always fun

Thanks.

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APPENDIX

Publications documenting the formative evaluation of the BSCS Human Sciences program.

Robinson, J. T. Human Sciences Data File, User's Guide for the Machine-Readable Data File. Center for Educational Research and Evaluation, 833 W. South Boulder Road, Louisville, Colorado, 80027, December 1981.

Robinson, J. T., and Tolman, R. R. Human Sciences Evaluation Data, HSPALL, An SPSS Archive File, Center for Educational Research and Evaluation, 833 W. South Boulder Road, Louisville, Colorado, 80027, December 1981.

Robinson, J. T., and Tolman, R. R. Codebook for Human Sciences Data File, HSALL. Center for Educational Research and Evaluation, 833 W. South Boulder Road, Louisville, Colorado, 80027, December 1981.

Robinson, J. T., and Tolman, R. R. Human Sciences Activity Characteristics and Reviewer Evaluation File, HSAC, User's Guide for the Machine Readable Data File. Center for Educational Research and Evaluation, 833 W. South Boulder Road, Louisville, Colorado, 80027, December 1981.

Robinson, J. T., and Tolman, R. R. Codebook for Human Sciences Activity Characteristics and Reviewer Evaluation File, HSAC. Center for Educational Research and Evaluation, 833 W. South Boulder Road, Louisville, Colorado, 80027, December 1981.

Robinson, J. T., and Tolman, R. R. Human Sciences Activity Characteristics and Reviewer Evaluation File, HSAC, An SPSS Systems File. Center for Educational Research and Evaluation, 833 W. South Boulder Road, Louisville, Colorado, 80027, December 1981.

Ross, N. M., Jr. The Human Sciences Program, A History. Human Sciences Program, BSCS, 833 W. South Boulder Road, Louisville, Colorado, 80027. December, 1981.